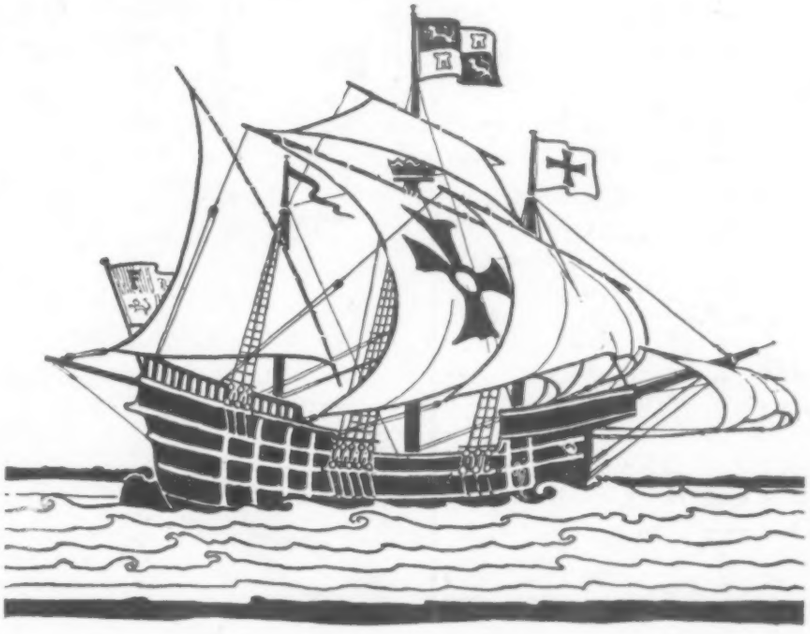
Yachting

WITH MOTOR AND SAIL



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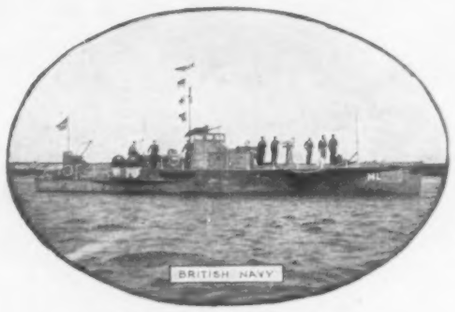

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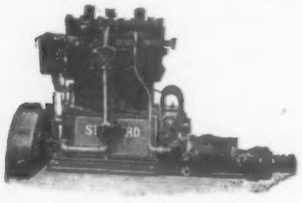

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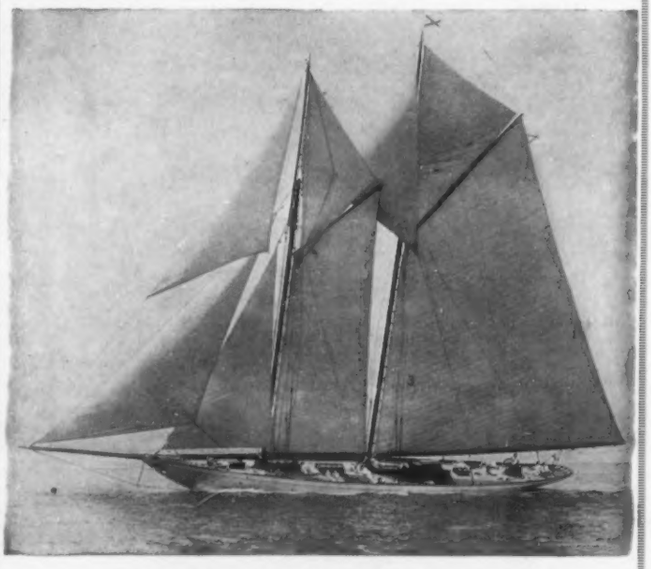

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The experienced yachtsman never fails to specify that his boat, big or little, be fitted with

LOWELL DUCK

THE STANDARD YACHT SAIL CLOTH

Ask your dealer to show you the name on the end of the roll

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wishes to announce that, owing to the completion of certain Government contracts, we can ***now*** accept orders for

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CONTENTS OF YACHTING

FOR DECEMBER, 1918

VOL. XXIV NUMBER VI

WILLIAM ATKIN, Editor STILLMAN TAYLOR, Associate

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Tomorrow We Sail Again!

SHIPMATES, the war is over! der Tag is here! And Prussian Wilhelm has it in das neck—The Day indeed! Keelhauled, wrecked, oh Hun, whose future was the sea—All's well!

Now for happier times.

Looking ahead.

We shall be sailing again next summer—sailing as in the days before the war, cruising over the week ends, looking in at dear old Lloyds Harbor, beating up the Great South Bay, sailing on the Western Lakes, and motor yachting everywhere—

We'll have to build many new boats—and buy new engines. For thousands of the craft that we used to sail are used up—Service in the navy has worn out many motor craft, and the bulging pockets of the second-hand metal man shows where the lead keels and bronze bolts of the sailing fleet have gone.

We have before us the prospects of a race for the America's cup—Shamrock IV is here and Resolute is around and Vanite too, remember. I, for one, hope Sir Thomas Lipton wins it; one horse winning every race is poor sport. Poor indeed.

There is the B. I. T. trophy to be won again. What will a Liberty motor do toward winning it? All kinds of internal combustion motors have stepped up the hill of progress in wide strides since the first gun of Armageddon was fired. We'll begin to see "real" speed on the water soon.

Some of us are going to stay in the air with the flying boats. Here's a big field for boat builders and engine manufacturers.

And then there is that great crowd—the ones God made so many of, because as Abraham Lincoln said, "God loved their kind"—who are the backbone and the foundation upon which the sport of motor yachting and sailing yachting is built and stands. They'll be afloat again—they'll build modest and useful little boats and refit and overhaul the older ones. Gladness be theirs.

Let none of us, though in gladness, forget the war. Let none of us forget the ones who have caressed their Master, the ones whose eyes cannot see, the ones whose legs are gone, the ones whose loved ones mourn—No, never forget. Never!

No more Sonderclass. Remember!

Shipmates, to-morrow we sail again! Sail in peace.

WILLIAM ATKIN, Editor.

Address all communications to Outing Publishing Company, 141-145 West 36th Street, New York City. Albert Britt, Presidept; W. A. Miles, Secretary and Treasurer. Entered as second class matter July 25th, 1907, at the Post-office at New York City, under the act of March 3rd, 1879. European Agent: The International News Co., London. Price, 25c a copy, $2.50 a year. Foreign Postage $1 a year. Issued on the first of every month. Copyright, 1918, by Outing Publishing Co.

ITH the issuance of this number, *Yachting* completes its twelfth year: twelve years that have seen the development of the motor yacht in its most interesting phases—twelve years that have cemented in our hearts a better love for sailing craft—twelve years that have witnessed the creation and success of the flying boat and aeroplane—twelve years that have, within their span, looked upon the universal use of the wireless telegraph, the discovery of the two Poles, and contemplated the spectacle of the whole world at war,—and trilliards of other things.

Wonderful days, those now gone! Fortunately, it is the blessed privilege of many of us to have seen them through and the religion of most of us, I like to think, to hold in reverence the last four years—the four of war and death. Fortunately, too, thousands of men, despite the hardships of war, are coming home, coming home with a better knowledge of the sea, and of the great outdoors, and therefore, with a better love for both.

The sport of yachting, both under motor and under sail, will feel the impetus of these returning legions. The boat and engine industries will feel this urge, and the Yacht Clubs also.

Glad times are coming—busy times—profitable times—and the thing I can wish to do most is to make a better boating magazine, for you—all old timers, and the newcomers, to read.

Therefore, look for a bigger, a more interesting, a more informative, and an, as ever, loyal-to-the-sport *Yachting* beginning with the January 1st number.

First: a new size will greet you. It will have a beam of 8½ inches and an over all length of 12 inches; a size that is becoming standard among all publications. Second: there will be more pages. Third: they will be more full than ever before of things of the sea, especially of motor yachts, of sailing yachts, of speed boats and cruising craft—not forgetting the canoe, the outboard motored launch, the yawl, the sloop, nor the appeal of the larger motor yacht.

WILLIAM ATKIN, Editor.

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YACHTING

VOLUME XXIV, NUMBER VI DECEMBER, 1918 25 Cents a Copy $2.50 a Year

P. D. K. 11 was first in the dinghy class in 1918

The club members cruise up the river on some of the week ends

The champion boat of the Class A sloops is **Calleroo,** owned by E. G. Blackadar

Sailing on Lake Deschenes

An Account of the Yachting Season's Activities Across Our Northern Border in Ottawa

DAVID S. KIRBY

ALTHOUGH the Sailing Division of the Britannia Boating Club has been greatly handicapped by the inroads into its membership made by the war and by the fire which completely destroyed its club house, the sailors have been very successful in running off a very good programme of racing and cruising this season. The headquarters of the Britannia Boating Club are situated on Lake Deschenes, an expansion of the Ottawa River, about seven or eight miles west of Ottawa. For some time past considerable interest has been taken in sailing on Lake Deschenes, but it was not till lately that the sailors organized themselves into the Sailing Division of the above named club. However, as soon as they had got things running smoothly the war intervened, and before long the membership was cut in half. Despite the loss of these members those left behind have succeeded in keeping alive the sport and have had very great success in recruiting new members.

For racing purposes the boats are divided into three classes, viz.: (1) Class A sloops, (2) Class B. sloops, (3) 14-foot dinghy class. The class A. sloops are all new boats of late design, while the class B. sloops are the older and slower boats. The 14-foot dinghies are mostly Aykroyd boats, and are very sturdy, being able to go through any of the winds that Lake Deschenes sees with flying colors. The races are held on Saturday afternoons over a three-mile triangular course sailed twice aroundd. The sloop classes are started at three-thirty, while the dinghies get away five minutes later. The boat obtaining the greatest number of points, in six races sailed during the season over the course, in each class receives a silver cup, and the one in each class getting second place receives a silver shield, while the third boat gets a large silk pennant. There are also four challenge trophies to be competed for. The Long Cup and the Hayman Cup are for cruising races for the sloops and dinghies, respectively, while the Brown Shield is for a twelve mile race. Then there is the Bangs Cup, which goes to the winner of a series of three races for the dinghies alone.

This year the programme of races was being run off very successfully until the disastrous fire, which completely demolished the club house and incidentally much of the sailors' equipment, interrupted the schedule. Owing to the fact that the boat owners lost nearly all their light sails and camping equipment it was impossible to run off the Long Cup and Hayman Cup races, and as both of these cups were lost in the fire these two races were reluctantly called off for this season. However, after some little delay the schedule was completed and the boats hauled out for the winter.

Among the class A. sloops there was very keen competition throughout the season. The *Calleroo* owned and sailed by Mr. E. G. Blackadar, suceeded in carrying off the premier honors, while Dr. J. O. Carss' *Hope* came second. The *Restless* owned by the late John G. Hickson took third place after giving the other two boats a hard fight for their places. The *Riona* and *Velvet* owing to continued hard luck came third and fourth respectively. In the class B. sloops *Autoa*, sailed by Mr. Frank Mace, got first place and the *Frolic*, owned by Mr. R. Sneyd came second, while Mr. A. C. Bleakney's *Kathleen* finished third. In the dinghy class there was also very good racing. In three out of the six club races in this class there was less than thirty seconds between the first and second boats. Mr. Donald S. Kirby in *D. P. K. II.* succeeded in winning first place while *Tago* sailed by Mr. Leopold Gauthier came a very close second. Mr Charlie Long came third in his *Dieppe*.

During the season there were also three week-end cruises held. On Saturday, June 29th, the boats went up the river to Basken's wharf. A good number of the sailors took part, there being about twenty-seven fellows in the bunch. The next cruise was held on August 3rd, 4th and 5th. This time about the same number went up, but it differed from past cruises in that the boats did not stick together for the weekend but all went to different places. The third cruise came immediately after the fire, and as most of the boats were minus their jibs it was im-

possible for them to take part. However, the *Hope* and the *Callaroo* made the trip and a very enjoyable time was spent by the crews of the two boats. Next year it is the intention to endeavor to make these short week-end cruises more popular still, as they afford an opportunity for a good outing.

This year there were seventy starters in all, forty-five in the sloop classes and twenty-five in the dinghy class. This is thought to be a pretty fair showing considering the fact that out of a total membership of about ninety the Sailing Division has given fifty-two of its members to the cause of freedom. Of the forty left there is not one eligible for service overseas, all of them being either above or below the military age, married men, returned soldiers, or men who have been pronounced medically unfit for active service.

The club also has been struck heavily by the hand of death. Ten of its members overseas have been killed and Mr. Jack Hickson, who was untiring in his efforts to promote the sport of sailing, succumbed to an attack of pneumonia this fall.

The prizes awarded were as follows:

Class A. Sloops

1. Silver Cup.....*Calleroo*.....E. G. Blackadar
2. Silver Shield...*Hope*.....J. O. Carss.
3. Silk pennant...*Restless*.....Late J. G. Hickson

14-foot Dinghies

1. Silver cup.....*D. P. K. II*...D. S. Kirby
2. Silver shield...*Tago*.....L. Gauthier
3. Silk pennant...*Dieppe*.....C. Long

Brown Shield

1. *Hope*.....J. O. Carss
2. *Riona*.....G. Bremner

Bangs Cup

1. *D. P. K. II*.....D. S. Kirby
2. *Tago*.....L. Gauthier

It has been the desire of the few sailors that the war has left to sail the waters of Lake Deschenes and keep alive the sport of sailing until those fellow-members who have gone overseas in defence of their King and Country return to their former haunts. As a means to this end the following schedule was run off during the past season:

June 15th and 22nd—Sloop and dinghy races, Club course
June 29th—Cruise to Basken's Wharf; return, July 1st.
July 6th and 13th—Sloop and dinghy races—Club course.
August 3rd—Cruise to Basken's Wharf; return, August 5th.
August 10th—Sloop and dinghy races, Club course.
September 14th—Sloop and dinghy races, Club course.
September 21st—Brown Shield race to Victoria Yacht Club and return, distance 12 miles.

The following boats comprised the fleet this season:

Sloops

No.	Name	Owner
1.	*Velvet*	James Jackson
2.	*Hope*	J. O. Carss
3.	*Restless*	J. G. Hickson
4.	*Callaroo*	E. G. Blackadar
5.	*Hebe*	G. Meerton
6.	*Riona*	G. Bremner
7.	*Kathleen*	A. C. Bleakney
8.	*Frolic*	R. Sneyd
9.	*Maple Leaf*	C. Belanger

Yawls

11. *Autoa*.....F. G. Mace

14-foot Dinghies

16. *Caress*.....Mrs. G. Campbell
17. *D. P. K. II*.....D. S. Kirby
18. *Gadfly*.....H. Cameron
19. .....G. Dwight
20. *Breeze*.....Miss B. Robertson
21. *Tago*.....G. and L. Gauthier
22. *Dieppe*.....C. Long
23. .....H. Wilson and L. Dickson
24. *Lilian*.....G. Treadwell
25. *Knut*.....A. Armon

17-foot Dinghies

26. *Les*.....W. Ross
27. *Betty B*.....A. Baylis and A. Berkeley

A list of those in the service of their King and Country follows:

Killed in Action

J. Cunningham
N. S. MacDonald
C. Saunders
R. W. Nichols
U. Seguin
R. Stata
D. Masson
G. Masson
W. Salton
S. McDonald

Prisoner of War

Ken. Slater

On Active Service or Honorably Discharged

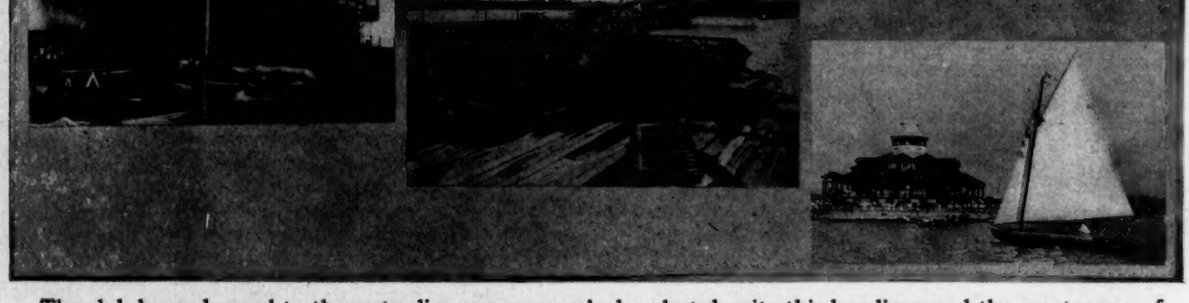
Baldwin, P. M.
Bleakney, S.
Belanger, C.
Blackadar, F. N.
Bourget, P.
Bradley, H. M.
Bennett, J.
Code, R.
Capreol, L.
Cunningham, R.
Couchon, E.
Davies, G.
Elliott, G.
Fraser, L.
Gardner, G. C.
Gardner, C.
Gordon, R. J.
Gauthier, G. H.
Gauthier, H.
Hickson, J. G.
Haycock, O. B.
Jackson, J.
Kirby, D. P.
Kirby, S. S.
Kenly, R. D.
King, A.
Long, Lt.-Col., C. E.
Leblanc, J. O.
LeVoy, M.
MacLaughlin, D.
MacCormack, J.
Masson, G.
Pringle, R.
Rogers, H.
Rice, W.
Robertson, G.
Robertson, H..
Ross, W.
Thompson, V.
Tolfree, C. P.
Wood, W.

Officers of the Division and Sailing Committee for 1918

Hon. Commodore.....Mr. R. J. Gordon
Hon. Vice-Commodores...Mr. David P. Kirby
Mr. Geo. C. Gardner
Commodore and Chairman of Sailing Division.....Lt.-Col. C. E. Long
Vice-Commodore.....Mr. E. G. Blackadar
Secretary-Treasurer.....Mr. Donald S. Kirby
Measurer.....Mr. Frank G. Mace
Committee:
Messrs. W. A. Hayman, R. J. Hickson, J. G. Hickson, G. H. Gauthier, G. D. Barrowman, J. Jackson, G. Bremner, L. Gauthier

It is the intention of the Sailing Division to have an informal dinner some time around

(Continued on page 237)



The club house burned to the water line one summer's day, but despite this handicap and the greater one of membership loss because of the war, these Canadian sailors had a successful season

The Scooter

The Coming of Winter Reminds Us That Sailing On the Ice Has Charms of Its Own, and What Better Means of Enjoying Them Than In a Flying Scooter?

THE scooter, without attempting a literal definition of its name, is a sort of amphibious ice-yacht which first came into use among the baymen and life savers of Great South Bay and other land-locked bodies of water lying on the south side of Long Island, where it was necessary to have some means of communication between the mainland and the outlying beaches, over a broad stretch of bay that was partly frozen over and partly covered with open water and air holes.

These bays present conditions in winter which are peculiar to themselves, owing to the strong tides, heavy winds, and their proximity to the large body of fairly warm water outside which prevents them from freezing entirely across. Formerly, the only mode of getting from the mainland to the beach was to drag a flat-bottomed boat over the ice and rowing or poling it across the open stretches of water. To lessen the work of dragging the boats over the ice, the life savers and fishermen finally hit on the idea of setting a small sail on the boat to help them along when the wind was fair. Eventually sledge runners were fastened directly on the bottom of the boat, the sail area was increased, and from this crude craft the present scooter was evolved.

In form the present boat is very much like a ducking skiff, being practically flat on the bottom, though with considerable crown to both bottom and deck, about a foot deep, and steered by sails, there being no rudder. It can travel over the surface of hard or soft ice, can sail through open water when it comes to it, and can lift out on the ice again on the other side with no other assistance than the power of the wind in its sails.

Although the scooter has been used for many years by the baymen, it was only about ten years ago that it began to be used for pleasure purposes. Since then, the growth of the sport has been very rapid and there are countless numbers of these craft scattered along the shores of Great South Bay and adjacent waters. Until recently the use of this type of boat was confined to these waters, but a few years ago ice-boat enthusiasts took up the scooter in different parts of the country, and when the pleasure to be derived from them was appreciated the craft grew in popularity, especially where the climatic conditions were such as to make ice strong enough for ice-boating a doubtful thing for any length of time.

The scooter is simple to build and anyone can put it together who can handle tools at all. Most of the ones in use on the Bay are home-built, by men who are not boat builders or carpenters. To-day the typical scooter is from fourteen to fifteen feet long, with a beam of four to five feet. It is well decked all around, particularly forward, so that the open space forms a cockpit only five or five and a-half feet long and two feet to two and a-half wide. Around the cockpit runs a powerful coaming, built to withstand rough knocks, and rising at least three inches above the deck. The entire deck has a gentle turtle-back curve, or crown, fore and aft and across. This curve of the deck is almost duplicated by the bottom of the scooter, thus making a very slight modification of a flat bottom.

Now come the runners—really the only thing that makes the scooter different from any other boat. They are made of brass or steel. Each has its votaries. The men with brass runners can file them true and sharp whenever they wish, especially before a race, without wasting more than a few minutes. There are conditions where steel runners hold the ice better and again at times the softer brass runners are a decided advantage. On a fourteen-foot boat the runners will be about ten feet long, slightly rocker-shaped, one inch wide and from one and a-half to one and three-quarter inches high, being so set and ground as to bevel inwards. They are set about twenty inches apart. It is in the shape, set, and location of the runners that further evolution and perfection of the scooter as a racing machine probably will come.

The rig is invariably jib and mainsail and in sailing on hard ice or water these sails control the course of the boat. The sail area is from 75 to 125 square feet. The mast which is set well aft, is from nine to ten feet long. The sails may be rigged in any way customary for small boats. The handiest are the regulation boom and gaff and sprit rigs for mainsails, while it is well to have a small boom for the foot of the jib, because its proper manipulation and set are so important for the handling of the boat. The bowsprit is large and heavy, and projects from two and one-half to three feet beyond the hull. In racing boats it is made removable, so that larger or smaller sticks can be substituted according to weather.

The sail spread of the scooter differs from that of common craft in that the canvas has its greatest extent laterally instead of in height. The scooter wants as much sail as possible astern and in the bow, because it is the canvas alone that steers her. Therefore, a scooter with a nine foot mast may carry a seven or eight foot gaff and a boom extending fifteen feet and more, although fourteen is the usual length for a nine and a-half foot mast. The leach of such a sail will be fourteen feet or a little more. The foot of the jib will be at least seven feet and the leach about the same.

Most of the boats are built of pine with oak decks. They must be strong, to withstand the extremely violent wrenches and bumps due to the rough work in the broken ice. The equipment consists of a pair of oars and a pike pole with sharpened points. The latter is as vital to scootering as an anchor is to a yacht. It offers the only method by which the scooterer can work his way through bad mush ice if the wind is not strong enough to force him over or through it. It is needed, also, to bring the scooter around in extra heavy weather, in case the steering power of the jib should not be sufficient to do it quickly, or the sailor lose control of his craft temporarily, a contingency that is likely to happen with bewildering suddenness in the case of a two hundred pound craft with a forty mile wind projecting it over ice smooth as glass.

It is wonderful how well the jib steers the scooter, however. There being no tiller to demand the care of the sailor, he can handle his jib and mainsail alone and thus make them work in perfect harmony. Let go the jib sheet and haul taut the main, and the little boat will come around as sweetly as any deep-finned yacht minds her helm. She will reach and beat into the eye of the wind, and her runners will not make more leeway than most centerboards. If she is to come up in the wind in a particular hurry, the steersman steps swiftly toward the bow, so that his weight makes the bearing fall on the keel forward, and the lightened stern comes right around. Thus, by nice adjustment of weight and close manipulation of sails, the scooter can be made to turn in her own length—spin around like a top. Practically, the man who can sail any small boat really well can sail a scooter. There are lots of "wrinkles"; but there is only one radically new thing to learn, and that is a queer one.

The scooter's poorest point of sailing is running free before the wind. Indeed, to be precise, the scooter can't sail at all before the wind. The moment the mainsail blankets the jib in a following wind, the steering power is totally gone.

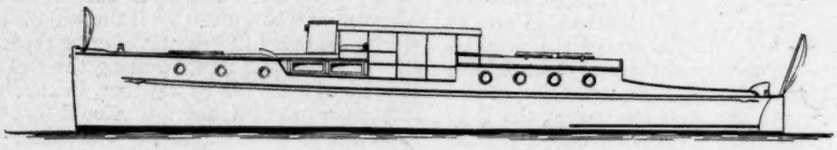
The only way to sail a scooter before the wind is to beat down it. You've got to tack before a wind with a scooter just as you have to tack into one.

One or two make her crew. She can carry three, but it is better to have less. When she darts over smooth ice, the men perch on the coaming, aft to windward, as they do on cat-boats. When she nears rubble or hummocks, or prepares to dive into mush or water, all hands stand up, to relieve her of dead weight. To enter open water, she is driven straight at it. That is the time the hand at the "helm" must know what to do

(Continued on page 237)

A 50-FOOT MILITARY TYPE CRUISER

A COMPLETELY equipped Express Cruiser which built to the highest standards known to the industry, comfortably and luxuriously accommodates a party of eight, a crew of two, and yet is capable of a speed of 22 to 24 miles an hour.

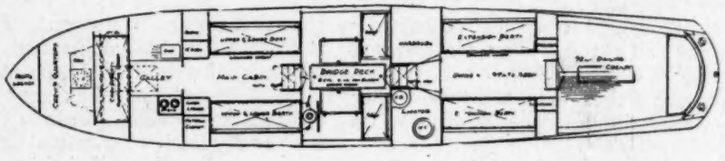


IN the designing and building of their 50-foot Military Type Express Cruisers, the Great Lakes Boat Building Corporation have done everything to make them comfortable and livable; to install in them as many of the little conveniences as possible, and to give them that inviting appearance which is seldom found in the average boat.

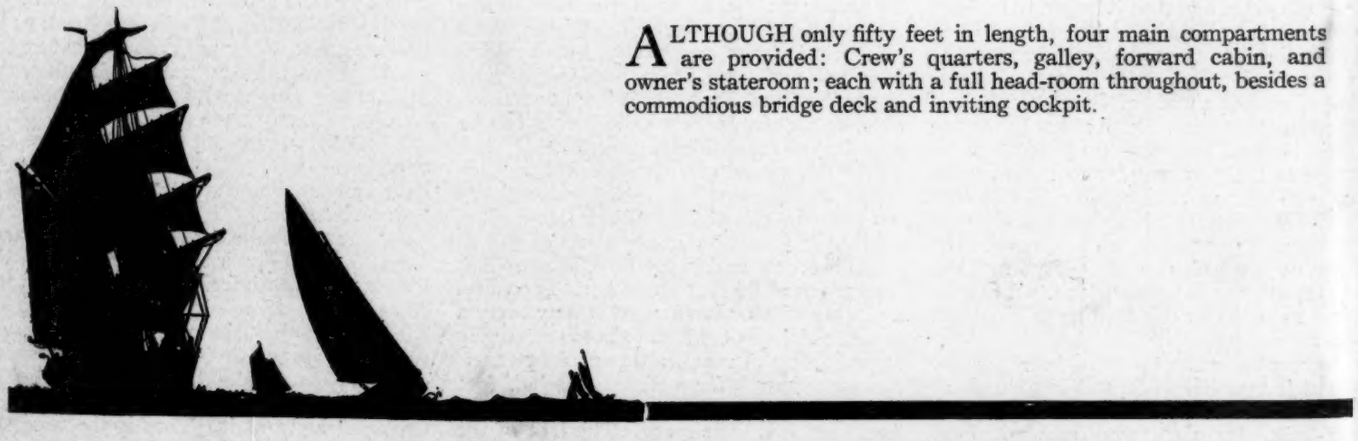
Co-ordinating speed with seaworthiness, this cruiser represents a distinct improvement in boats of this size and type. Moreover, the finish is most excellent and the appointments all that can be desired.

With quiet refinement reflected throughout the entire boat, it is without doubt one of the most uniquely comfortable and luxurious cruisers that has been developed in a fast and seaworthy military type. The manner in which every available inch of space has been utilized for some useful purpose is most gratifying to the owner.

The cabins throughout are fully screened with gnat-proof bronze. Electric lights are provided in locations where the maximum of light is desired. Medicine cabinets, linen lockers, towel racks, laundry bags and clothes lockers are furnished in the various compartments.



ALTHOUGH only fifty feet in length, four main compartments are provided: Crew's quarters, galley, forward cabin, and owner's stateroom; each with a full head-room throughout, besides a commodious bridge deck and inviting cockpit.



Salt Sea Honeymooning

Being a Narrative of Life Afloat and at Camp in Southern Waters

By the MATE with Photographs by the SKIPPER

THIS narrative, though primarily intended to help those seeking a deviation from the conventional honeymoon of pullman cars, hotels and Niagara Falls, can also be used with untold pleasure and benefit, physically and mentally, by the tired business man, the bored lady, the wornout housekeeper, the lover of nature, the poet or the sportsman, provided only that there is an old salt sea head along to cool the vain illusions of the uninitiated. For just any two, three or dozen land lubbers, unfamiliar with the whims of tide and wind, and the fancies of a motor boat, will fare badly without the continual presence of one who knows and loves the water and matters pertaining thereto, from long and hard experience. It is ideal, of course, in the case of a honeymoon, to have the experienced head in the family, in order to avoid a crowd. But if crowd it must be, make it of four and not three, since newlyweds are ever unmindful of a third party's point of view, and he may suffer from loneliness and everpresence on his part. Other than honeymooners may make the crowd to suit themselves, although the smaller the crowd, the smaller the complications as to provisions, transportation and the necessity of pleasing everybody. A large party produces large and varied desires.

But enough of warnings and pitfalls for the present, and on to the narrative. The Newlyweds, hereafter to be called the Skipper and Mate planned to fly in the face of black cats and witches, and embark for their honeymoon on the thirteenth of the month, and to a lone, little outlying island—merely a strip of sand—to a dwelling boldly called "Camp 13." Gorgeous letter-head, emblazoned with a fouled anchor into which the family initials were skilfully woven—they proved to be unwoven by the family only—was secured beforehand. However a superstitious Fate delayed the departure some days, and furnished the chain of events that led to the name which the honeymoon craft earned. Great doubt and worry were in the minds of the Skipper and Mate as to a suitable name for this all important craft—a twenty-two foot dory. Hundreds of names, all and none of which seemed suitable, were jotted down for consideration and the time of launching came without a decision as to the cognomen to adorn her stern. Likewise without a stern to be adorned, for upon arriving at the assembling point for crew and equipment no boat was to be found. Due to unforeseen delays, it arrived nearly a week late and instead of a beautiful little fairy boat, ready to receive a happy and irresponsible pair and glide gracefully out to sea, she was a dingy little dory that sunk as soon as she hit the water. She was suffering from that trouble indigenous to most converted dories: a leaky shaft-log. She was persuaded to float after being well calked and fitted with a new, metal, inside, shaft-log.

The engine stubbornly refused to come back to life after its salt bath and an entirely new engine was installed. Five days passed, in which the Skipper and Mate fretted and fumed to be off, each day presenting a new trouble, until out of the fullness of their hearts they simultaneously christened the unworthy craft, the *Dammit*. She was deeply insulted and thenceforth set out to redeem herself, which she truly did and earned a more decent name, had her first not been irrevocably painted on her stern. After the sinking, of necessity, she was repainted—white with a red top-strake and a buff-colored deck.

The yacht ensign floating from the stern, she set her bow to sea on Friday morning, June the nineteenth, at nine o'clock. In her wake, she towed two bateaux filled with camp junk. And here, dear reader, and those especially who contemplate a beach camp, let it be said that the Skipper and Mate, the former of whom was the old salt sea head, had no intention of roughing it. They had brought along all of the necessities and as many of the comforts of home as they had room for. Roughing it is all right for a day or two, when one can pack up and go back to sheets and pillow cases and dry socks on short notice, but for a week or two months, as in this case, ample preparation and plenty of food and raiment are necessary. The Skipper and Mate had chosen a camp site some twenty-five miles from civilization, which meant five hours on the water, making no stops, and good weather to make the trip. Without plenty of food and dry clothing, in case of a rainy week—for such things do occur even on a honeymoon—the joy of living would be replaced by damp matches and cold, wet bathing suits. The Skipper had desired to have the camp shipshape in two days, so had hired two brawny Senegambians to go down and help for the first two days.

"The second trip of exploration was to visit a lighthouse on the third island from No. '13'"

Promptly at nine, the *Dammit* cut loose from the dock, like a sputtering bantam hen dragging two turkey gobblers after her. The bateaux, about ten feet apart, were covered with tarpaulins in case they ran into a squall. A Senegambian was mounted in the stern of each to steer. The Skipper and Mate were packed in the bow of the *Dammit* under a big brown umbrella. Amid planks, slickers, life-preservers, gasoline cans, lunch, cushions and the emergency sail and spar, only a narrow aisle to the engine was left. The route to the camp led from town out by a river, through a wide sound which was cut off from the ocean by a chain of small islands—the first barrier to the sea—one of which, the Skipper and Mate desired to own, rule and dwell upon for the next two months. The surf and sand bars making it dangerous to go outside and land on the beach, the safer plan of following marsh creeks and landing behind the island was chosen. Some twenty-five years before, the Skipper had visited the chosen site, but in recent years little was known of the place because of its inaccessibility. This same inaccessibility proved a great blessing by way of keeping away Sunday picnickers and hungry fishermen. It also left the Skipper and Mate a rich fishing ground full of unsophisticated and gullible fish.

The first trip down, in truth an exploration, would have been long and tiresome except for the fact that the Skipper and the Mate were newlyweds, full of a spirit of adventure. Strange to say, the first buoy passed was numbered 13. Not knowing that at least half tide would be needed to get through the shallow marsh creeks, that

"Great doubt and worry were in the minds of the Skipper and Mate as to a suitable name for this all important craft—a 22 foot dory"

part of the journey was unluckily reached at low water and after dragging bottom and scraping shell banks for some five or six miles, the *Dammit* fetched up on a mud bank so hard that it took two hours of tide to float her. This happened twice because the Mate was steering and being a greenhorn did not know that the deep water was usually on the inside of the curve of the stream, so the Skipper said, though she doubted whether even he could have missed a blooming mud bank that threatened to dam up the creek. Each stop afforded an excuse to dive into the lunch basket. At last, a distant booming roar sent a tingle down the Skipper's spine. Jumping upon the forward deck he sighted a line of curling white breakers beyond a row of sand dunes and he knew that only the dunes lay between him and the beach he sought. At five o'clock the *Dammit* chugged up behind the strip of sand and stopped at a landing just made to fit a tired dory and where she could rest at all times, sheltered from wind and rough water by the hills between her and the ocean a hundred yards away, where the surf at high tide was then booming like a howitzer. The Skipper and Mate forgot boat and boat hands and jumped ashore on a run for the beach, while the dusky Senegambians went about tying up and unloading the boats, unmindful and untouched by a glorious sunset shining on a riotous surf.

The tents were hastily pitched on the sand by the Skipper and one Senegambian while the other Senegambian prepared a grits and bacon supper with driftwood and a fire jack. The Mate was busy digging out sheets and blankets and pajamas. After dark, while the Skipper and Mate discussed plans for permanent arrangements, the Senegambians went forth with a cast net and hauled in a breakfast of mullet. The next day was to be spent systematically in putting up permanent fixtures in the order of their importance. The culinary department being voted the preeminent one, was begun first. However, ceremonies were begun with the laying of the corner stone in the form of a flag pole—two skinned pine poles, nailed together making a height of thirty feet—planted in the highest sand hill within the camp premises. Two flags were hoisted, the yacht ensign followed by a black flag bearing a red 13. The latter flew day and night and could be seen seven miles away. All worship of nature, exploration and surf bathing were put aside until headquarters were in order. The two tents—kitchen and sleeping, were to be pitched on floors above the sand, on tent poles tall enough to lift the tent walls two feet above the floor, which space would be boarded up, thus giving extra height to the tents, which were 9x9 army, wall tents treated on the roof with a waterproofing preparation. The sleeping tent was stretched over a house frame built of dressed 2 x 4 well spiked together, to assure greater strength against the wind, since it was placed on a sand hill to windward, while the kitchen tent was placed behind under the hill, with its entrance to leeward. The prevailing winds being from the ocean, this position was chosen to protect the stove—a three burner oil stove—from drafts. Hoping to find board and plank on the beach, deposited there by the tide, the Skipper brought only enough sawed plank to fit out the kitchen and set up the frame of the sleeping tent. Beyond his expectations, boards of all lengths and thicknesses were scattered along the front beach—plenty and more to finish the wood work and save a trip to town.

The interior arrangement of the kitchen was governed by the stove which was placed against the back wall where breezes were least apt to find it. Three shelves ran the length of one side wall and on the other side, a narrow table and a low water-bucket shelf were built. A folding camp table and two folding stools stood near the door. This table was used in preparing meals and hastily cleared for a dining table, while the narrow table in the rear received pots and pans and general kitchen debris. During a meal, the Skipper and Mate sat with backs turned to the stove and pile of pots, and looked out the door at waving hurricane reeds and endless green marsh. Or they might look toward the three long shelves, since these were georgeously decorated with canned and bottled goodies and rows of shining tins. The heavy groceries such as rice, grits, meal, sugar, bacon, etc., were kept in separate canvas bags, packed in a large waterproof, canvas-covered box. In here too, the all important matches were kept dry in a tightly screwed Mason jar, for the very air on the beach will put them out of striking order in a few days if allowed to get to them. Many useless articles of food were brought along that might have been left behind, because salt air and salt water created working men's appetite that wanted only simple food and plenty of it. Fish-out-of-the-water-and-into-the-frying-pan was to be the mainstay, with grits or rice and pilot bread as balancers. On special occasions, canned soup and Irish potatoes or beans were served, with a dab of jam and a swig of gingerale. Shrimp and crab, though plentiful, were not on the menu, since neither the Skipper nor the Mate liked them well enough to pick them.

The carpenter work done on the kitchen and the stove set up on its shipping crate for legs, the Skipper and his trusty black pair proceeded to the "sleeper" and left the Mate to set in array the family china, consisting of four white enamelled dinner plates, two soup plates, two cups, two glasses and a dozen tin plates—last but not least by any means, two dozen fibre-paper plates which proved an endless blessing in draining bacon and fish. They were not especially nice to eat from because they sometimes go to pieces under the dinner. A varied row of pans and saucepans and griddles, tapering off into long handled spoons and forks, hung behind the stove. In an idle hour, the Skipper had made a neat tray with three compartments for the family silver—six pieces from the ten cents store. A large dishpan hung on the back tent pole, affording a mirror for the Mate to primp in just before dinner was served. A line for the dish towels ran across just under it. Drinking water, of course, was brought down and kept in five gallon kegs and canvas water bags. These latter, African water bags, took the place of ice water, it being impractical and almost impossible to keep ice on the beach in June. However, in these, water would keep remarkably cool if hung in the shade and breeze. The water for cooking purposes was gotten from a well dug near the kitchen. As queer as it may sound to the uninitiated, practically fresh water may be found about twenty-five yards from the high water mark of the surf itself, and it may have been safe for drinking water though the Skipper and Mate preferred hauling theirs. The looseness of the sand made it necessary to sink a barrel for a well curbing. Old Mother Atlantic did the dish washing. The Skipper and Mate, armed with rags and a bristly brush, carried all pots and pans and dishes to the water's edge and with sand for soap, dish washing lost all semblance to drudgery

and became a sport. It kept one on the jump to keep a plate from dancing out to sea or a skillet from washing out of reach of rag and brush. It's a good idea to have one fellow sit on the dirty dishes and the other sit on the clean ones. The kitchen was put in apple pie order and the foundation of the sleeping tent laid, on the first day. Work on the latter was then halted to transfer the Senegambians to the poop deck, an awning to be stretched in front of the boudoir, and which extended within ten feet of the high water mark on the front beach. The awning, a 20 by 20, was bound around with rope and fitted with guy ropes in grommets along the side. A long skinned pole resting at either end on crutches made of poles lashed together at the top, ran fore and aft as a ridge pole and over this the awning was stretched tight and almost horizontal, the side ropes being tied to parallel poles supported six feet above ground by three posts each. These latter posts were buried deep and guyed by wires attached to dead men. The frame work was strongly braced by wires running diagonally from the crutches to the corner posts. This may sound like a lot of trouble for nothing as it looked to the green Mate, who however, was extremely grateful for all wires and desirous of more when a storm threatened to blow tents, tent poles and the very island from its moorings. The tents were likewise guyed to poles on posts running parallel to the tent eaves, since ordinary tent pegs will not hold in loose sand. Regulation tent flies were stretched over each tent, thus making an air space that kept the interior of the tents much cooler than it would have been with the midday sun shining directly on the roofs. Flies of this kind are imperative on the beach.

At sunset of the first day, the Senegambians were paid off and sent home. Like two Indian warriors embarking for the Happy Hunting Ground, they set out and disappeared into the brilliant sunset, leaving the Skipper and Mate feeling like two mites at the mercy of Nature, beyond the help of man. There was no fear in their hearts—only a wild sense of freedom. Conventionality could be thrown to the winds. For the bodies' sake, some attempt at regularity of meals was maintained though there was a wide range of hours in which a meal might be served, depending on whether one wished to fish at a certain time or on a certain tide. Irregularity of meals modified by continual fresh air and exercise does no harm, dieticians to the contrary, as was proved by an extra twenty-six pounds gained by the Mate in the two months. The next day being Sunday, some rest was taken while the Skipper tried the new phonograph—a small camp model—and the Mate brushed up on camp cookery, but in the afternoon the well was dug and the sleeping tent was completed. With a double, folding cot, soft camp chairs, a big red chest and mural decorations of pajamas and bathing suits, the boudoir wore a homelike face. Under the cot four large, canvas, waterproof duffle bags were stored. These were marked with their contents—whether household goods, Skipper's or Mate's clothes. In the back of the tent hung a product of the Skipper's hands—a set of wall pockets that could take care of toilet articles, the flash light, "skeeter dope," etc. The chest, an old typewriter box painted red and reinforced with iron corners, was a waterproof safe for valuables and articles susceptible to rust and damage from salt air; such as the camera, rifle and pistol. In here too was the medicine kit which contained household remedies for ordinary aches and pains, and "snake bite" for emergencies. Ample armor was prepared against mosquitoes—the great drawback to southern beaches. At night a cheese cloth net bound top and bottom with tape was tied by the four corners to rings in the tent roof. A wire frame was not used, it being unhandy to pack and to get out of the way during the day. Buckshot were sewed in the bottom tape six inches apart to keep the wind from blowing open a door for the ever watchful mosquito. The tent walls were rolled up day and night except in rainy weather. As long as a south breeze blew, those imps of Satan were kept away, but when a land breeze set up there was no peace outside the net and on such occasions the Skipper and Mate retired with the sun, for dark increased their forces a hundredfold. If unluckily, dark caught them and the enemy gathered too thick and fast, a smoke pot of dry sedge would drive them out the tent long enough to get the net rigged up. "Skeeter dope" will keep the shyer mosquitoes away possibly five minutes. However, the south breeze is the rule and the land breeze the exception. If a reader is considering a beach camp for the first time, let him beware of pitching his tent near trees, for there the mosquitoes are ever present and almost beyond endurance. Nay, rather take the glare of a shadeless beach and supply himself well with awnings and flies for shade. Too, no trees with sunlight shining through in spots that hit square in the eye can rival the broad shadow of a canvas awning under which a hammock is rocked by a mosquitoless breeze. The weak-eyed may wear yellow glasses against the midday glare.

The night of the second day saw the camp shipshape and the Skipper and Mate ready for their first moonlight walk down the beach. There was only one direction left for strolling since the camp was on the extreme northeast end of the island. Three miles of shining, shell strewn beach lay unexplored to the southwest. A row of sand hills made a backbone down the middle of the island, behind which stretched miles of marsh and winding creeks interspersed with palmetto hummocks back to the mainland. Partly by plan, partly by the workings of a kind fate, the full moon fell upon this night—the third at camp. You who have seen the majesty of a moonlit beach at high tide can here draw a breath of mighty appreciation, and you who have it, yet to see haste to get your chance to say from the depths of your soul, "Gosh, ain't it swell?" Some fifty yards below the tents, the beach curved around a sandy bluff against which the surf dashed furiously at high tide biting off huge chunks of sand. The beach had washed back two hundred yards within the memory of the Skipper and where he had once seen a grove of large trees now was marked by dead, black, barnacle covered stumps far out on the beach, covered by six feet of water at high tide. The water was seen finally to cut back to a group of stately palmettos and greedily snatch one from the group and dash it to the beach to be carried to sea by some storm tide which tiring of it would drop it, ragged and soaked, on some distant shore.

Like specks on the desert, the Skipper and Mate went down the beach with eyes stretched wide to see if some goblin or elf was going to dance out from a sand dune. It was impossible to grasp the realization that no other human being was within miles. Presently, a goblin or an elf darted out from a pile of driftwood and the Skipper and Mate, always armed with sharp hickory walking sticks, made for the flying creature hurrying to the water's edge. Goblin or cat or hallucination, he evidently thought himself alone on the beach, until hearing the running feet behind him he darted into the shelter of a clump of myrtle bushes, which the Skipper and Mate surrounded and began thrashing, when a stifling volume

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of poisoned gas arose and the attacking party fell back in dismay. With one hand as a gas mask and the other to wield the weapon, the attack was renewed at a point whence came a faint squeal. Presently, a long, dark, fuzzy creature was dragged out, which in the moonlight had the appearance of a mink but the general air of a skunk. A grave marked with clam shell, was made for this first native to lose his life. Dear reader, this was not ruthless and brutal warfare on an innocent party, for the Skipper and Mate had decided to bring some chickens to the island to act as garbage pails and here they had slain a deadly enemy of the fowl. Farther down the beach, queer shadows enticing to further adventure, an old sea buoy, some twelve feet long, was washed ashore and half buried in the sand. Judging from a dent in the side, a ship's propeller had cut it from its moorings at sea. Here a mile from camp, the Skipper and Mate rested and watched the tide turn around and start back to sea as noisily and joyously as though it had not been doing the same thing twice a day for millions of years. When ebb tide had been running for a half hour or more, the black jagged edges of an old ship's hull began to peep up. The Skipper knew it was there—knew it had been blown ashore twenty-five years before in a big storm. At low water, the wreckage lay high and dry like a circular picket fence. Here later, some rare shells and sea creatures were found—also some valuable copper bolts.

On the following morning, the Skipper and Mate awoke with the sun which rose straight out the sea, and went down the beach to hunt the nest of the sea turtle. The female of the species, ancient and estimable ladies, come ashore on the high tides of the summer to lay their eggs in a hole dug in the dry sand beyond the high water mark. Nature, ever mindful of offspring, has taught her to come up only on the high tide at night, the night tides being higher than the day tides, so that she can see where the highest water mark reaches. Mrs. Turtle weighs some four hundred pounds and naturally with her spadelike flippers and sharp toenails makes a big track on the beach—in fact, she rivals a two horse plow. She is as wise as Solomon too or she has the so-called feminine capriciousness, because she makes a number of flat packed places like nests, either to deceive enemies or because she can't decide which is the best bed for her progeny. Using her flippers like trowels, she digs a hole about two feet deep, in which she lays her eggs, packing the sand tight to the level of the ground. Then she leaves them forever and they hatch themselves, and digging out go scuttling back to the water, after which nothing is known until a few hundred years later they come up and make their own nests.

The Skipper and Mate found two nests on the first morning, after much sticking in the blind nests. The Skipper usually found the nests first as his stick had a long iron spike on the end and thus went in deeper. When the point came out with egg sticking to it, they dug there and found the nest, carrying home 206 eggs—97 from one nest and 109 from the other. These eggs, soft shelled, taste very much like hen's eggs and can be used as an equivalent at all times. The daily findings were buried under the kitchen floor to be kept cool and fresh, but those wily little yellow men of the beach, sand crabs, found the way in and undermined the store, so that each new store had to have a new hiding place and be packed hard and tight. The usual recipe for preparing turtle eggs was simple, the eggs being placed in boiling salted water for ten minutes and eaten with a sprinkling of salt and pepper. However, an elaborate omelet may be made of them and they truly rival hen eggs in making cake or muffins. The Skipper's birthday came on the fourth day at camp and though the Skipper did not like notice to be given to it any more, the Mate prepared a sumptuous repast and put no candles on the cake, a snowy frosted, turtle egg creation in the center of the table. Sprigs of myrtle garnished the board and a menu of cocktail soup, rice, sheephead, potatoes, beans and tomatoes made the Skipper forget the number of this milestone.

Fishing was primarily meant to be the chief sport at "13," and all net and hand line fishing was eclipsed by bass and sheephead fishing in the surf. The former were caught with a rod and reel and the latter with a long cane pole and line at one of the old barnacle covered stumps on the beach. At flood tide the bass gathered to feed on the myriads of small fish, there feeding also, at the mouth of the inlet at the end of the island, and here the Mate tried to learn to catch bass scientifically—she never did though two beauties hooked themselves and were hauled ashore. They were only about twenty-four inches long, but felt like whales on the line and almost carried the Mate to sea. The Skipper preferred sheephead fishing because he could catch them. Both bass and sheephead had to be caught at the same time of tide. Each day on the early flood the Skipper could be seen waist deep in the surf, creeping up to ease his line into the sheephead drop while the Mate was a hundred yards up the beach at the inlet mouth, rodding and reeling for bass. Each wore woolen bathing suits under long-sleeved middies, for warmth and protection from the sun, respectively. The Skipper wore a tin can of fiddlers, for bait, around his neck. He had only to go to the edge of the marsh and put his foot down a few times to capture a quart of bait. Bass fishing, on the other hand, required finger mullet that had to be caught with a cast net. The ocean had kindly dug out a slough at one part of the front beach, in which droves of little mullet would be left by the ebbing tide in only a few inches of water, and here at low water the Skipper cast for bait with which to fish on the next flood tide. The Mate wore her bait in the pockets of a canvas belt, built for that purpose. To protect her complexion, she also wore an inch of cold cream and powder and a blue cheese cloth veil over a wide hat. The Skipper had given her up as a bad job when it came to bass fishing. She would not play the bass right and a lesson usually ended in a quarrel, and the Skipper would stalk off down the beach to his sheephead drop, whereupon a bass would swallow the mullet and hook, and for spite, the Mate would have to get him ashore, play or no play. A storm tide washed up a sand bar and ruined the Skipper's drop, so that he had to content himself with bass fishing the latter days at camp. One bass or sheephead was enough for one meal, and not desiring to be game hogs, just how many of either could have been caught on a tide never was found out. Once the Skipper caught six sheephead—in his joy forgetting to stop—necessitating a trip to town to give five of them away to five poor creatures who, year after year, did not appreciate their blessings enough to go and catch

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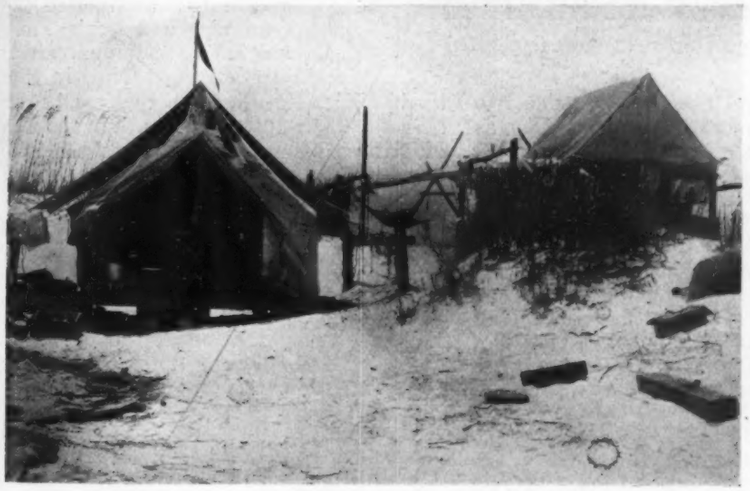
them and really thought sheephead and bass as much of a treat as a Kentucky mountaineer would have. The Skipper always scaled and dressed the fish, and except for the mending of the family wardrobe by the Mate, all labor was shared equally, house work and cooking being done together. Mechanical work, the Skipper did because he alone knew how and here the Mate could only hold the hammer and nails.

The daily duties of camp keeping and the necessity of catching fish for at least one meal a day, and of keeping up fishing tackle and cleaning the boat, made time fly until the Skipper and Mate realized that it behooved them to hasten to get long planned explorations made before the summer passed away. Explorations on the home island naturally went on continually, and many and curious were the findings each day. Unvisited by man in some time, except occasionally by a pair of Senegambians seeking turtle nests, and caring nothing for oddities on the beach, the tide had deposited steamer chairs, parts of ships and ships' rigging, bottles, barrels, and plank galore. A sign post, evidently from a wrecking expedition, came ashore. It was marked in red and black, "Keep Out. Danger." This, topped by the human-like skull of a big turtle was planted before the camp front door, though only porpoises and pelicans had occasion to regard it. Myriads of shells of every kind and color were gathered and packed in sea weed for later study. The Skipper found a huge cedar saw-log washed ashore, possibly from some passing ship, which made him "dribble at de mouf" to get at with saw and plane, but before he could bring hands enough to haul it to the landing, a great storm tide floated it out to sea again and it was seen no more, though the Skipper has never stopped looking and hoping to find it buried under some sedge heap somewhere. This same storm threatened to sweep "13," *Dammit*, and man from the face of the island. A gradually rising wind, that reached its zenith after six hours, brought the tide to the very doorstep under the poop deck, and swashing back between the sand hills, came up from the rear to the back door. Completely surrounded by angry water, dashing and roaring against their fortress of sand hills, while an angrier wind made the tent ropes pop against the flapping canvas like British artillery, the Skipper and Mate prepared to ride it out in the *Dammit*, should the water reach their pinnacle. The Skipper watched the *Dammit* tugging at her moorings, while the Mate kept fascinated eyes on the furious curling breakers that rode in like wild horses, manes flying. When the rain came the water became calm and receded, and the elements gradually becoming tired went to rest. Down on the beach the waves sounded like old Neptune snoring. Possibly, on the hill above, the Skipper and Mate did the same. For some days, the clouds and wind were cross looking, so that the weekly trip to town for mail and provisions was delayed, and a searching party came a-hunting the remains of these two foolish creatures, finding them dry and well, having suffered from neither wet clothes nor ruined food—by a mere chance—nor any inconvenience save that the well had been completely covered up, and the Skipper had to dig another on the top of a sand hill, six feet to water, since all lower places were salt soaked. In the storm, a naval collier was blown ashore and wrecked, a hundred miles north of the camp.



"All worship of nature, explorations and surf bathing were put aside until headquarters were in order. The two tents were pitched on floors above the sand"

On the weekly trips to town, new routes were sought to break the monotony. Once—only once—the outside route was attempted, on the high seas in front of the islands, but the smallness of the *Dammit* contrasted too painfully with the vastness of the sea, and she cut four somersaults to the Skipper's own knowledge. On another trip, the longest way around was tried, which proved to be twenty-five miles and five hours longer than any other way. The lunch gave out and the water ran low. In an idle morning the Skipper and Mate would go shopping to one of the inland islands and buy vegetables—more for an excuse to ride in new waters than from any need of the vegetables. Four chickens were bought from a gullible Senegambian for the meager sum of twenty cents each, but instead of keeping the back yard clean, as was expected they scorned scraps, and lived on fiddlers and bugs, coming to the domicile only to roost on the roof. Their ingratitude was speedily punished with a frying for the *Dammit's* lunch basket. Sand crabs, tired of their beach fare, welcomed this strange new menu, and over night would haul off every vestige of food from the back yard. Beach camping is singularly free from odors of cooking, and a midday sun will sterilize and deodorize anything it falls upon. Germs are not tolerated by it, and there dirt means only soot or engine grease.

The four islands nearest to "13" were to be given a day of exploration each. These islands were separated from one another by an outflowing creek or river, and the distance between varied from miles to feet, according to the size of the stream behind, seeking its way to the ocean. "13" being on the point of the island, only about a hundred yards of water separated it from the point of the next island. The Skipper and Mate swam this inlet at low water and explored the neighboring beach, finding it unattractive because of the proximity of thick woods, hence thick mosquitoes. Deer tracks were seen on the beach, and runs led into the woods, but it was not the deer season. Wild hogs and bears were alleged to be plentiful on this island, but the Skipper and Mate saw no signs of them. The lack of woods on the camp island made it free from savage beasts, and save for coons, thousands of sandpipers, cranes, curlews, fish hawks and unnamed birds, who quarrelled at the usurpers of their fishing ground, no native questioned their claim. It is an endless amusement to watch perfectly undomesticated birds. They don't understand human nature. A group of curlews will bob up and down along the beach, complaining shrilly of the intruder in their realm, or a company of stately, sad eyed cranes will stand on one leg, in mournful silence, pouting at the rude thing called man. The pelican, ugliest of birds, is more cordial, likewise more curious, and has a sense of humor. He will fly very near and hover over a swimmer, making him think he will surely swoop down and swallow him—then fly away and go on about his business. He will fish awhile and when tired, sit on the waves and ride, like an old fat lady in a rocking chair. All he needs to complete the picture, is some knitting. No matter how far he has travelled in the morning, when nightfall comes he goes to his own bed. At dusk, like an army of tired old fat fellows, hundreds of them can be seen panting home, low above the water. Only two small sized shark fins were sighted in the two months, and the Mate hopes that those treacherous sea cannibals are becoming extinct. The harmless porpoises were plentiful, and at almost any hour when the water was calm,

a pair might be seen playing and fishing back and forth, like black wheels turning out of the water.

Explorations on other islands were fixed on days in which the tide came in in the morning, to give the *Dammit* enough water to get in and out the creek and to the landing. To go in or to come out the creek, flood tide was necessary, in case the *Dammit* should stop to rest on a mud bank, she wouldn't have to rest five hours until the tide went down and rose again to float her. The night before a voyage in the morning, a lunch was prepared and packed in a canvas bag—peanut butter, pilot bread, fried chicken, potato chips, turtle eggs and coffee a la thermos bottle. The *Dammit* usually set forth early in the morning to ply in unknown waters—early morning meaning daylight or before. Plenty of water, extra clothing and cushions were allowed for each trip, in case the explorers should become stranded, and unless the return before dark was assured, the mosquito net went on the trip too. The usual camp garb of shirt, khaki knickers, canvas shoes, etc., was used on explorations, unless the route led to or through a settlement, whereupon the Skipper slipped on a necktie and the Mate donned a skirt. The second trip of exploration was to visit a lighthouse on the third island from "13." It was necessary to go behind the islands, since the surf and sand bars—and former experience—made it prohibitive to go outside. Things went well on this trip, and the Skipper and Mate were welcomed at the lighthouse by an old Cockney keeper, who showed them the light and his dwelling—the only one on the island—where he and his assistants lived in separate appartments—the provision of a wise government—which, however, did not keep them from quarrelling so that they were seldom on speaking terms. The two assistants being away, he invited the Skipper and Mate to dinner with him. With their lunch and his pot of chicken and potato stew, and some watermelons, the time passed too quickly till the tide was ready, though not waiting, to take them back home. On this trip, and others thereafter, the sail was hoisted as an auxiliary to the engine, and the *Dammit* made two miles per hour more when the wind was fair. The Skipper and Mate had tarried too long in good company, and besides catching the tide late, tried a short cut and got lost. Instead of crossing a broad sheet of pretty looking water to the creek entrance behind "13," in the hurry to outrun a gathering storm, they ran onto a shallow mud flat peppered with treacherous shell banks. The *Dammit* fetched up on them, with a sickening, grating sound that rings the mariner's heart, no less than nine times. Each time the Skipper had to get overboard and ease the stern over, while the Mate stood on the bow trying to push off with a long pole. The rising tide changed appearances so that there was no telling where deep water was, and the *Dammit* struggled over shell banks until the tide was high enough to float her anywhere on the flat. The tide and the *Dammit* raced with the storm to the landing on a nearby island, reaching it as the drops began to fall. Night came, but like the pelicans, no roost would take the place of their own. The Skipper and Mate, boosted by the last drops of their jug, set the prow homeward, and the noble little *Dammit* plowed through thick darkness till she found her own bed on familiar shores. Campbell's soup, heated to boiling was nightcap enough for the Skipper and Mate, who turned in without rocking.

Under sail and power, Dammit made fine speed

Each week brought new expeditions and new places were found—the interesting ones being noted for a second visit. As though guided by an ever mindful thirteenth star, no serious mishaps occurred at any time. The Skipper took much credit for this to himself, however, because he loved and nursed and petted the *Dammit* morning and evening, and she would have been an ungrateful wretch to have left him in the lurch. With Nature and her whims, he ran no risks, and would not embark in the face of unfavorable weather and tide. This narrative shall not be marred by the sordid details of dismantling and packing or the sadness of bare places and parting looks, but rather, we would leave the Skipper and Mate, after a busy day, lying in the hammock, watching a lazy moon rise above the foam, while the wind blows against their faces, and they talk on at random as to whether they will need new pajamas and extra soup for an extra month next summer.

A Wilcox and Crittenden Oil Compass

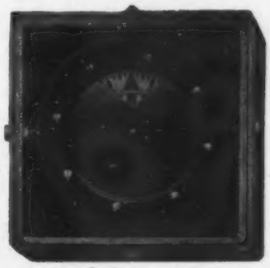
THE Wilcox & Crittenden Oil Compass is constructed on scientific principles by skillful workmen. Its action, accuracy and steadiness are guaranteed under all conditions. Built to withstand the jars of power craft, the dial is adjusted to remain steady in a sea way, and to respond quickly to a change in the direction of the craft. The absence of floats, needle tubes, rubber packing and mica tend to simplify the instrument, and greatly lessen the chances for trouble.

The dial is supported by an imported jeweled bearing on a pivot of hardened steel with burnished point. It does not rest heavily on the pivot; neither does it float so high as to touch the glass, and so interfere with the free movement of the dial. Friction is reduced to a minimum, and no float is necessary as the weight of the dial is carefully adjusted to the nature and density of the liquid. Wilcox & Crittenden dials will not warp or crack; sizes 3 in. and larger are backed with metal. Neither cloth nor mica is used, as cloth often frays on the edge, and the tiny threads rub against the bowl, thereby interfering with the free movement of the dial, while mica has a tendency to crack. All Wilcox & Crittenden dials have the Navy degree circle on the outer edge, Nos. 1 and 2 being marked every ten degrees with five degree points indicated. Nos. 3, 4, and 5 are marked every ten degrees with two degree points indicated.

The needles are made of a special magnetic steel, charged by a device which was designed for us by an expert in electricity and magnetism. Uniform strength is absolutely assured, and the line of direction is given exceptional attention. Owing to the proper treatment of the needles Wilcox & Crittenden dials are very sensitive in smooth water (a condition which prevails particularly in foggy weather when a compass is most needed) as well as in rough

water, the motion of which in itself tends to assist the oscillation of the dial of even a sluggish compass. It is not necessary to encase the needle of a Wilcox & Crittenden compass in a brass tube, as is done in the case of spirit compasses; extra weight and additional chances for trouble are thereby removed. Tests made in Detroit, Mich., and Middletown, Conn., with a No. 3 compass showed the time of vibration to be 8.5 seconds at a temperature of 63 to 70 degrees. The pivot is made from tool steel, needle pointed, skillfully tempered amd centered in the bowl.

The bowl of the compass is cast (not spun) from non-porous bronze, coated inside with an insoluble paint (the formula for which we own) which will not crack or peel, and which will remain white indefinitely. The lubber lines are carefully placed by templet, and sharply defined against the white interior of the bowl. The outside of the bowl is finished with two coats of enamel. An expansion chamber in the bottom of the bowl provides for the variation



The Wilcox & Crittenden compass is made for rugged service

of the liquid under climatic changes, and each compass is thoroughly tested for expansion and contraction before shipping. The plate glass top of the Wilcox & Crittenden rests on permanent metallic packing; no rubber is used as it deteriorates rapidly around salt water.

The liquid is a clear colorless oil which will not congeal or freeze in the coldest weather. This makes for a better working instrument in low temperatures, particularly in high latitudes where the "dip" of the needle is great, and the natural horizontal power is correspondingly reduced. 45 degrees is relatively high latitude when speaking of the "dip" of needle. In that and higher latitudes we have long periods of low temperature, but in view of the nature of this oil the action of the Wilcox & Crittenden compass will not become sluggish. Furthermore, the oil used in the Wilcox & Crittenden compass is lighter than the liquid used in the spirit compasses (which is approximately three-fifths water) and the dial will move faster and more freely in the lighter liquid.

A LETTER FROM OVERSEAS

U. S. S. C. 96
U. S. Naval Forces
European Waters Base No. 25
Care Postmaster, N. Y. City
September 19, 1918.
Thursday evening,
In Port.

My dear "Sis":

Your letters of August 21st and 23rd arrived a few days ago and was sure glad to hear from you. It must take quite a little of your time to write me so often, as I note these dates are pretty close together, however your time is put to a good cause for, as I have said many times before, mail is the cry of every one on this side.

Yesterday I received a *Montclair Times* that had been delivered to another boat and of course it proved very interesting to me. There's nothing like the home town news and those you marked were of course news to me. I cannot imagine the old town after this war. It will be like moving into a strange burg.

Sis, I know you had something to do with the box I received and thank you a thousand times for your thoughtfulness. The tooth paste we get here is of foreign make and leaves a disagreeable taste. Some of the fellows can't use it at all, so you see that the tube inclosed was a welcome present. A thing that struck me as being rather queer is the box of candy. Just the week before I wrote, asking you to send me a box of that very kind. You can imagine how surprised and pleased I was to find it in the box. Well it's all gone now, but gosh, Sis, it was good!

Last week the fellows from three of the chasers, including No. 96, were entertained at the Y. M. headquarters by the women who represent that most welcome organization at this base. The fellows furnished the music in which I also gave a hand. The women were very pleasant and entertained us royally, we played blind man's buff, ran potato races, etc. These games I know sound very kiddish to you and probably would to us if we were at a party in the States, but here every one was out for fun. Can't you imagine a bunch of big "gobs" running with a potato on a spoon or going around blindfolded? Well let me tell you we laughed and had more fun out of it than if we had played baseball.

"Eats" were the finishing touches and of course they were enjoyed by all. Everyone agreed that the evening was well spent and thanked the Y. M. very heartily. Too much credit cannot be given the Y. M. on this side. They have not been able to establish much of a hut here but then we are just about out of civilization so you cannot blame them very much. The women likewise deserve a great deal of credit to come way over here and put up with all kinds of inconveniences. That's Americanism though; and believe me, you can tell it in a person every time.

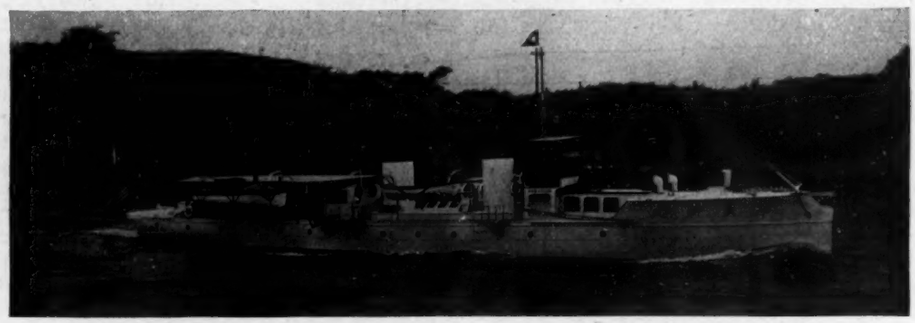
We have been in port a little longer than we had counted on, but none of us are sorry. This has given us a chance to catch up with ourselves and now most of us can boast of a clean locker, clothes, etc., and above all it gives us a chance to scribble some letters. Heretofore we were never in long enough to wash our clothes, not mentioning our chances of writing, mending, etc. Sis, the "gobs" used to kid me about darning socks. Every time I brought the "thing-a-me-jig," you know what I mean, you put in socks, they laughed, but now they all want to learn the art of darning, so you see knowing how to darn socks is one of the many things I can be thankful for having learned.

To-day is a scorcher as I said before. However the nights are fairly cool and very damp. The rainy season starts soon and then it pours for months without a let up. This they call their winter. Some winter.

Lots of love to all and hoping all are in the best of health as ever,

Your loving brother,
Al.

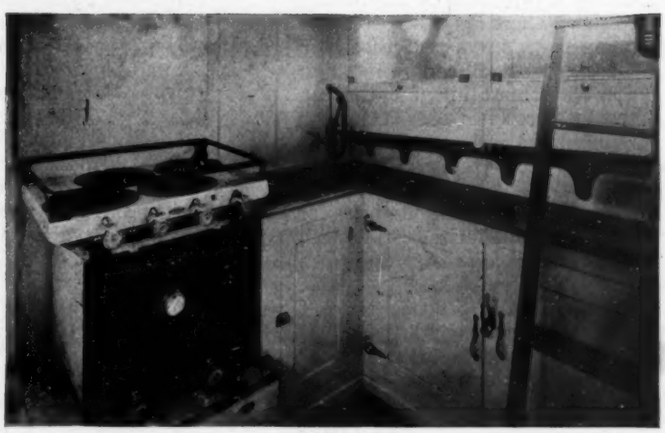
AMERICAN MOTOR INTERIORS



THE Winton motored yacht **Paragon**, built for Mr. Charles J. Darol of Providence, R. I., was designed by A. Loring Swazey and built at City Island by Wood.

THE freshness of colonial white appeals to many, and as the background for any color scheme it is charming, especially with doorways framed in dark mahogany and floor coverings of dark green.

THE galley must have a cooking range. A light weight compact one is made by the Gas Engine and Power Company, Morris Heights, N. Y. This particular one which burns pyro, is a nautical substitute for the familiar gas range used ashore.



YACHTS

THE motor propelled yacht has been developed by American naval architects to a very high degree. Beginning with the design of the hull, and embracing every detail of construction and equipment from their motors to their cabin fittings, they are wonderful craft.

ANOTHER galley with a famous SHIPMATE coal range. Everything "belongs" here, from the shining kettle, which doubtless is singing, to the galley sink and pump.

THIS dining saloon, which by the way is from one of America's first yachts, is the embodiment of good taste, combining simplicity and comfort without sacrificing architectural excellence.

THE main cabin aboard **Inquirer**, a Duesenberg powered craft built just before the war for Col. James Elverson. The cabin-side knees and crowned cabin carlins supply the earmarks of the sea to this up-to-date high speed motor cruiser.

The Choice of a Boat

Some Words of Good Advice Written a Number of Years Ago by Captain Kenealy

IF any ambitious would-be mariner, old or young, hailing from anywhere were to ask me what sort of a boat I would recommend him to build or buy, I would answer him frankly that an able cat-boat, with a center-board and stationary ballast would, in my judgment, be best. I would advise him to shun the "sandbaggers"—not that one cannot enjoy an immense amount of exciting sport in one of them, but because they seem to me to be only fit for racing, and I will tell you why. A man when he goes on a quiet cruise doesn't want to be bothered by having to shift heavy bags of sand every time the boat goes about. It is too much like hard work, and by the time your day's fun is finished you feel stiff in the joints. I have other arguments against the use of shifting ballast, but do not think any other save the one mentioned is necessary.

This point disposed of, let us confer. Of what shall the stationary ballast for our able cat-boat consist? Outside lead is of course the best, but its first cost is a serious matter. A cast-iron false keel or shoe answers admirably, and is moderate in price. Some persons object to it, claiming that it rusts and corrodes that its fastenings decay the wooden keel to which it is bolted, and that its weight strains a boat and soon causes her to become leaky. There is of course some truth in these charges; but if the boat is built by a mechanic and not an impostor, none of these disadvantages will exist, and the cast-iron keel will prove to be both efficient and economical.

But if, by straining a point, lead can be afforded, procure it by all means and have it bolted on outside. It neither tarnishes nor corrodes, and as it does not deteriorate, its marketable value is always the same. Racing yachts have, however, been known to sell for less than their lead ballast cost, but such instances are rare. It should be borne in mind that the lower down the lead is placed the less the quantity required, and the greater its efficiency.

There are always a number of second-hand cat-boats in the market for sale at a reasonable rate, and an advertisement will bring plenty of replies. But for a tyro to purchase a boat haphazard is a mistake on general principles. It is like a sailor buying a horse. Get some honest shipwright or boat builder to examine, say, some half dozen boats whose dimensions suit you, and whose prices are about what you think you can afford. There are certain portions of a cat-boat that are subject to violent strains when the craft is under way. The step of the mast and the center-board trunk are parts that require the vigilant eye of an expert.

Human nature is prone to temptation, and paint and putty are used quite often to conceal many important defects in a craft advertised for sale. The keen eye of a mechanic who has served his time to a boat-builder will soon detect all deficiencies of this kind, will ferret out rotten timbers, and under his advice and counsel you may succeed in picking up at a bargain some sound, seaworthy and serviceable craft in which you can enjoy yourself to your heart's content.

One tall well fitting sail marks the fast sailing cat boat

But if some rotten hull is foisted on you by an unscrupulous person you will be apt to "kick yourself round the block," for she will be always in need of repairs, and in the end, when she is finally condemned, you will find on figuring up the cost that it would have been money in your pocket if you had built a new boat.

The principal boat-builders of New York, New Jersey, Connecticut and Massachusetts are men of high character, who take a pride in their work (which is thoroughly first-class), and whose prices are strictly moderate. Any one of these will construct a capital boat of good model and fair speed. I am an old crank and a bigot in many things appertaining to boats and the sea, but I hope that any reader of this who is going to build a pleasure craft will follow my advice at least in this instance: Let her be copper-fastened above and below the water-line. Don't use a single galvanized nail or bolt in her construction. See that the fastenings are clenched on a roove—not simply turned down. Don't spoil the ship for a paltry ha'porth of tar. Many builders, for the sake of economy, use galvanized iron throughout, and will take a solemn affidavit that it is quite as good as copper. But in the innermost cockles of their hearts they know they are wrong. Others more conscientious use copper fastenings below the water-line and galvanized iron above; but copper throughout is my cry, and so will I ever maintain while I am on this side of the Styx.

Sometimes one may pick up a good serviceable boat at a Navy Yard sale. Uncle Sam's boats are of fair design and well built. They are often condemned because they are what is called "nail sick," a defect which can be easily remedied. Occasionally a steamship's life-boat can be bought for a trifle, and if it be fitted with a false keel with an iron shoe on it, will prove thoroughly seaworthy and a moderately good sailer.

Mr. E. F. Knight, the English barrister and author of the "Cruise of the *Falcon*," tells how he bought a life-boat condemned by the Peninsular and Oriental Company. She was thirty feet long with a beam of eight feet, very strong, being built of double skins of teak, and, like all the life-boats used by that company, an excellent sea boat. This craft he timbered and decked, rigged her as a ketch, and crossed the North Sea in her, going as far as Copenhagen and back, and encountering plenty of bad weather during the adventurous voyage. Mr. Knight is a believer in the pointed or life-boat stern for a small vessel. He was caught in a northwest gale, in the Gulf of Heligoland, in the above-mentioned craft, and had to sail sixty miles before a high and dangerous sea. His boat showed no tendency to broach to, "but rushed straight ahead across the steep sea in a fashion that gave us confidence and astonished us. Had she had the ordinary yacht's stern to present to those following masses of water, instead of a graceful wedge offering little resistance, we should have had a very uncomfortable time of it. Many men dislike a pointed stern and con-

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sider it ugly. However that may be it behaves handsomely, and we should certainly recommend any amateur building a sailing boat for coasting purposes to give her the life-boat stern."

Mr. Knight fitted his boat with lee boards, which no doubt served their purpose admirably. I should, however, favor a false keel and an iron shoe as being more efficient and less unsightly. I should not advise the purchaser of a condemned life-boat to have her fitted with a centerboard. The cost would be high, and unless the job was done in a first-class manner by a man experienced at this sort of work it would be very unsatisfactory.

A "nail-sick," clencher-built boat should be hauled up on the beach and filled with water. Every leak should be marked on the outside with chalk or white paint. After all the leaks have been discovered, run the water out of her and dry her thoroughly. Next examine every nail and try the lands or joinings of the planks with the blade of a very thin knife. Any rivets which have worked loose must be taken out and replaced with nails and rooves of a larger size. Through the chief parts of the bottom it may be necessary to put an additional nail between every two originally driven. Many of the old nails which are only a little slack should be hardened at their clench by a few taps from inside, one hand holding a "dollie" against the head of the nail on the outside. Melt a pound of pitch in a gallon of boiling North Carolina tar and give her bottom a good coat inside, filling the lands or ledges well. The garboard strake fastenings and also those of the hooded ends should be carefully caulked. So should the seams. The seams of the planking should also be caulked.

There are various methods of making a boat unsinkable. Cork is sometimes used, but it takes up too much room and is not so buoyant as air. Copper or zinc cases, made to fit under the thwarts and in various odd corners, have been fitted in boats, but their cost is high. Amateurs have used powder flasks and cracker cans, with their covers soldered on, cigar boxes, covered with duck and painted, bladders inflated with air, etc., etc. A boat displacing one ton will take about forty cubic feet of air to make her unsinkable.

Before getting a cat-boat under way from an anchorage, or casting adrift from moorings, the captain should see all gear clear, that the centerboard works easily in its trunk, and that oars, rowlocks and a baler are aboard. An oar is very handy for turning a boat's head round in a light air when she has barely steerage way on; and in case you are confronted with a flat calm, a pair of oars are indispensable for working homeward. A boat-hook, too, should not be neglected. There is a story that I heard in the forecastle, of a mean old Dutch skipper who left his new anchor ashore on purely economic grounds. He was afraid it might rust, I suppose. The result of this thrifty dodge was the loss of his vessel on the Goodwin Sands. My counsel to the young boat-skipper is to see that his anchor is snugly stowed away forward, and that his chain—if his cable is of chain—is properly shackled to the ring of the anchor, and that the inner end of the cable is fast to the heel of the mast by a lashing that can be cut if it is necessary to slip at any time. If the cable is of rope, take care that it is not made fast to the ring with a slippery hitch. Anchors cost money, and a bend that will not come adrift is quite simple to make.

Cast the tyers off the mainsail and hoist it, pulling up best on the throat halyards and then "swigging" on the peak till the after-leech is taut and the sail begins to wrinkle slightly at the throat. While you are setting the sail, let the sheet fly. Next coil down the throat and peak halyards clear for running, and see that the mainsheet is free from kinks and coiled so that it can be eased off at a moment's notice without any danger of jamming in the block. A kink in the mainsheet has capsized many a cat-boat. Before you reeve a new mainsheet, stretch it well and take all the kinks out of it. Take care that the running parts of all sheets and halyards are coiled uppermost, with the ends underneath.

Let us suppose that there is a nice breeze blowing and that your intention is to essay a four or five mile beat to windward, and then conclude your trial trip with a run home. Cast adrift from your moorings or get your anchor aboard, as the case may be, and start out on whichever tack is convenient. When on the starboard tack the boom is over to port, and *vice versa*. Lower the centerboard and fill away on the boat with one hand on the tiller and the other holding the mainsheet, which should never be belayed, but may be held by half a turn round the cleat.

Do not make the mistake of trimming in the sheet too flat, but let the boom off till it is well on the quarter and keep the sail well full, not allowing it to shiver. This is called steering "full-and-by," which signifies as close to the wind as possible with the sail not shaking. If your boat is well balanced—that is, if her weights are well adjusted and her sail of proper cut—she will carry quite a little weather helm. So much so that if you allow the rudder to come amidships or on a line with the keel she will fly up in the wind and her sails will shake. This is by no means a fault unless it is carried to excess, and it may be said, indeed, that there is something radically wrong with a craft that requires lee helm—a defect that should be remedied at once.

The young sailor should bear in mind that to accomplish the best results in beating to windward the sail should always be kept full. Nothing is gained by sailing a boat right in the wind's eye with the sail shivering. The boat then points higher but she goes to leeward like a crab. Instances have been known of a fore-and-aft racing yacht sailing within three points of the wind, but these are rare, indeed. The ordinary cat-boat will not often do better than pointing up within four points of the breeze, and her best windward work is generally thus accomplished. There are occasions, indeed, when what is known as a "fisherman's luff" may be indulged in with profit, such as when rounding a mark or shooting up to an anchorage where there is little room. The maneuver consists in luffing the boat up into the wind so that the sails shake, and she shoots dead to windward by her own momentum. If the boat is a heavy one she will shoot quite a distance. Care must be taken to put the helm up and fill on her before she loses way, or she will get "in irons" and acquire sternway, or perhaps pay off on the other tack. If a boat acquires sternway the helm must be shifted at once. The rudder will now produce the reverse effect to what it would if the boat were going ahead. Putting the tiller to starboard turns the vessel's head to port, and *vice versa* in the case of sternway.

The beginner will find that his boat spins along quite merrily and obeys the slightest touch of the tiller. He should not relax his vigilance in the least, but should keep his weather eye skinned for sudden gusts of wind or catspaws which may be seen ruffling the water to windward, in timely season before they strike the boat. As the little craft begins to heel or list over to the pressure, luff up a little so that the fore-leech of the sail begins to shiver. If there is not weight enough in the puff to put the lee rail under, sail her along with just the suspicion of a shake in the luff of the sail, so that if she goes over far enough for the water to threaten to come over the lee coamings and deluge the cockpit you can put your helm down and luff up until the boat comes nearly head to wind, at the same time lowering away your sail and making preparations for taking in a reef.

If you are a novice, and the water is neither too rough nor too deep and the breeze seems likely to last, and you think your craft is not up to carrying a whole mainsail, there is no reason why you should not drop anchor and reef your sail in leisurely and comfortable fashion. If you feel at all nervous take in a couple of reefs.

After sail has been shortened set the mainsail, hoist up the anchor again and thresh her at it. You will observe that she inclines less to the puffs under the pressure of the reduced sail, and that the lee gunwale is always well clear of the water. Watch the boat well; look out for coming squalls, and be prepared to ease off the sheet and luff up instantly should occasion arise. If there are other boats in company with you tacking toward the same point you must remember that those on the starboard tack have the right of way, and

(Continued on page 236)

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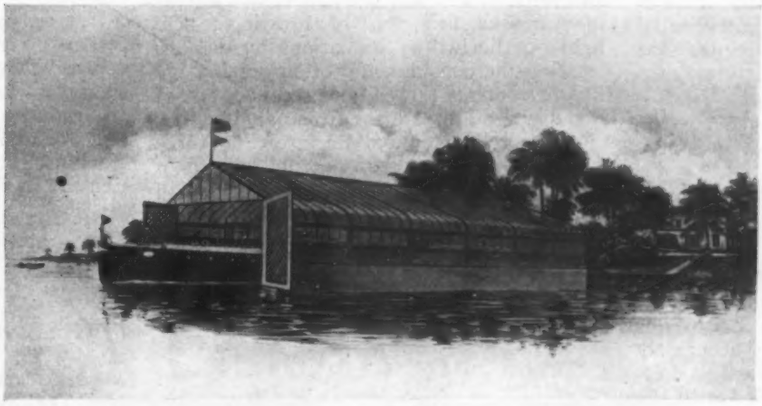

THE world's first glass boat house is being built for Mr. Lee M. Rumsey, of New York City, at Mr. Rumsey's winter home at Alton Beach, Miami, Florida, adding another item of interest to the many yachting novelties of this sub-tropical region.

Glass has been widely used in the construction of conservatories and swimming pools; however, its application to boat houses comes as a distinct novelty, though, when its advantages for this purpose are considered, it is a wonder no one thought of it before.

The structure is of pleasing lines, with curved eaves, and with the roof and sides constructed of glass there is little chance of mildew. It can be washed down with a hose from top to bottom. There is not a dark spot in the whole structure.

The supporting framework is of cast iron and steel, heavily galvanized. The glass used in glazing is ground, which softens the direct rays of the sun, while giving the maximum amount of light. The double doors are of wood, with an open lattice pattern that insures good air circulation.

In designing the structure, the architects, Lord & Burnham, of New York City, aimed to secure conditions approaching a boat at anchor, with a suitable covering to shield it from the weather. The foundation is of concrete. A toilet and storage closet are provided at one end.

FOR THE SKIPPER'S BOOK SHELF

AMONG the numerous new books on navigation recently published is *Simplified Navigation for Ships and Aircraft* by Prof. Charles Lane Poor.

A study of this work will be of the greatest assistance to the thousands of navigators now training and who in the very near future will man our naval and commercial aircraft, as well as our vessels that plough the seas.

Professor Lane has opened the way for a better understanding of navigation, especially as it pertains to the accurate voyaging of aircraft.

His latest book is written in non-technical language and explains without complicated mathematical formulas the principles that form the basis of all modern navigational methods.

The Century Company, New York, are the publishers of *Simplified Navigation for Ships and Aircraft.*

✿ ✿ ✿

IN *Aircraft and Submarines*, published by G. P. Putnam's Sons, New York, Willis J. Abbot has sketched simply and accurately the halting progress from the earliest days of history how men have grappled with the problems of flying and of sailing beneath the surface of the sea. He has outlined so far as possible from existing conditions the possibilities of the present day, and future usefulness of both aircraft and undersea craft, and in fields other than war.

The air borne mail, which has come to stay because it is a paying proposition, is but an inkling of the part aircraft will play in the very near future. We shall soon be flying for sport, for business, for everything. Get Mr. Abbot's book; it is good to read.

OVER the Seas for Uncle Sam comprises a series of Navy Stories—deeds of valor and sailor experiences, occurring in the war zone of the high seas.

The stories included in this volume are typical of the vicissitudes of navy men in war times. That they were collected and written by Elaine Sterne has accentuated their value, as she has couched them in the forceful language of their narrators.

Miss Sterne, as a lieutenant in the Girls' National Honor Guard has given her time exclusively since war began to programs of entertainment for invalided officers and men of the United States Navy, from whom she obtained many thrilling tales of heroism, the publication of which has been sanctioned by the proper authorities.

Britton Publishing Company, New York, are the publishers of *Over the Seas for Uncle Sam.*

✿ ✿ ✿

THE ideas of the principles of naval warfare as expounded in the best works of Rear Admiral Alfred T. Mahan, U. S. N., have been gathered into one volume by Allan Westcott, instructor, U. S. Naval Academy. The title of this work is *Mahan on Naval Warfare*, and it is published by Little, Brown & Company, Boston.

The significance of Admiral Mahan's writings, says Mr. Westcott in his preface, rests primarily on the consistent pursuit and brilliant accomplishments of two fundamental aims: first, that of throwing a new light on the history of nations by demonstrating the constant and often dominating influence of sea power; and second, that of deducing and illustrating from naval history the principles of naval warfare. To these fundamental purposes may be added a third: that of applying to naval, national, and international problems of the present and future, the lessons drawn from the past. The main divisions of the present volume correspond to these three purposes.

✿ ✿ ✿

THE activities of the American Navy, especially those of the destroyer arm of the fleet, in the Great War are described in James B. Connolly's new book, *The U-Boat Chasers.*

An indication of the book's timeliness is gained from some of its chapter headings: "Navy Ships," "Seeing them Across," "The U-Boats Appear," "The Censors," "The 343 Stays Up," "The Cargo Captains."

Charles Scribner's Sons, New York, are the publishers.

THE motor yachtsman's library is incomplete without *High Speed Internal Combustion Engines*, by Arthur W. Judge, A. R. C. Sc., a volume in which is collected, in as brief form as possible, the more important information relating to the subject of high speed internal combustion engines, as viewed from the theoretical and experimental sides.

The book comes from the press of Isaac Pitman & Sons, New York.

✿ ✿ ✿

OUT of the mists of yesterday there comes the narrative of one Geoffry Carlyle, captive on a pirate vessel of two centuries ago.

From beginning to end it is a stirring account, and a realistic one, of life at sea in the days when the black flag flew.

Randall Parrish is the author of this pirate tale, which by the way is entitled *Wolves of the Sea*, and its publishers are A.C. McClurg & Co., Chicago.

✿ ✿ ✿

IN *The Promise of Air*, Algernon Blackwood uses his peculiar powers of description and suggestion to lift his readers into a new and refreshing atmosphere, that of the future—the air.

In a sense this book from the press of E. P. Dutton & Company, New York, may be called the Gospel of the Air, for as one of its characters says, "We shall never be happy and right until we know the air as the birds do. We've learned all the earth has got to teach us. There's a new age coming—a new element its key: Air!"

✿ ✿ ✿

THE Steel Shipbuilder's Handbook written by C. W. Cook and published by Messrs. Longmans, Green & Company, New York, is an invaluable volume for men working in shipyards, as well as for students in the numerous classes now being conducted in shipbuilding. It is the result of a study of the latest and best methods in the large shipbuilding plants all over the country and contains about 1,600 accurate American definitions of ship building terms, arranged alphabetically, and completely cross-referenced. In the back of the book are four plates containing drawings of about 300 of the parts of ships. The size and shape make it possible to carry the book around for ready reference at all times.

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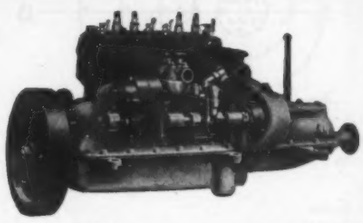

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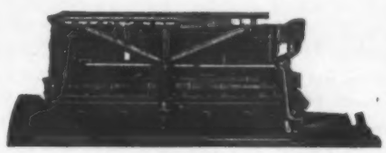

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Forecasting the Weather

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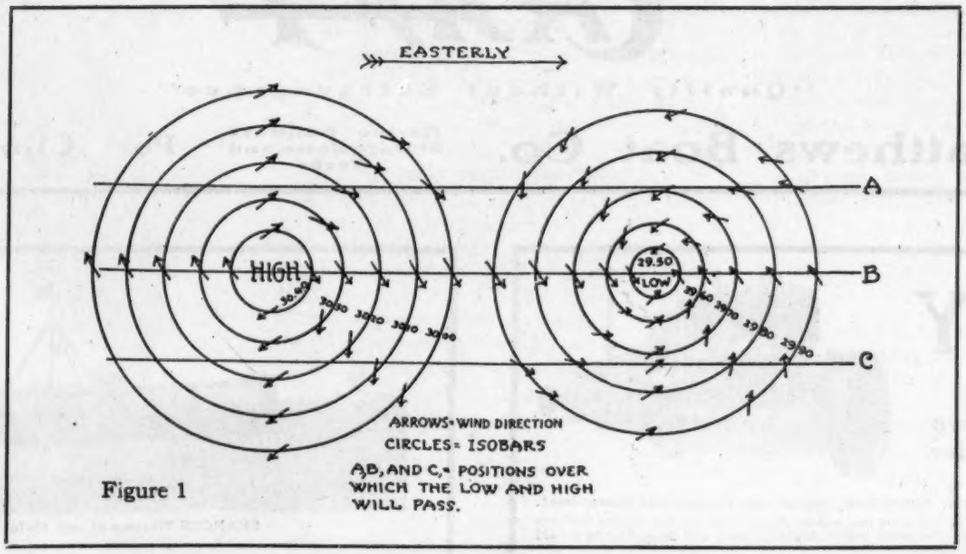

Figure 1

IN order to intelligently predict the changes of the weather it is essential to have a working knowledge of the laws that govern the weather and its changes and in this first chapter I will try and make clear to my fellow members the essential facts of the laws of weather as we find them in the North Temperate Zone.

When reading the Barometer we simply read the measure of the weight or pressure of the air at that particular place and elevation. Suppose we go down under water in a submarine bell and in the wall of the bell there is an instrument to indicate the pressure of the water outside. If the water is calm and the bell is moved up and down close to the undulating bottom of the water we would notice a difference in the pressure registered by the instrument being less as we went up and greater as we went down. This is also true of the air for if we climb up and down a mountain the air pressure changes, being lighter on the mountain and heavy in the valleys and at sea level. Again suppose the submarine bell is stationary and a storm comes up and great waves pass over the spot where the bell is located we would notice that as the water rose and fell the pressure would rise and fall. It is the same in the air for there is a constant passing over the earth of waves of atmospheric weight and as these waves pass over, the barometer will show a rise and fall as the crests and troughs of the waves move on.

In the North Temperate Zone the movement of the atmospheric pressure waves is always easterly, the center of the trough or the low points usually passing out over the Gulf of the St. Lawrence. This is true with the exception of a few low points which form in the Tropics and either pass up the Mississippi or the Atlantic Coast. These waves of atmospheric pressure are not in parallel ridges like the waves of the sea, but they are like a mountain range with peaks of different heights and valleys of different depths passing over the earth, not broadside, but end on; not as a company marching company front, but as in marching in column of twos. The speed of their passing varies from one peak and valley a day to one peak and valley in a week.

The high pressure areas are areas where the air is heavy or dense and low pressure areas are areas where the air is light or rare. As air is like fluid in its tendency to flow the direction of its flow is naturally from the high pressure areas to the low pressure areas and this movement of air is wind. The movement of air or wind in its relation to the highs and lows is in obedience to definite meteorological laws. Pull out the stopper of a wash bowl which is full of water and you will notice that the water does not rush to the center, but soon takes on a spiral direction rushing around and around on its way to the low point or opening of the bowl. Air currents or winds behave in the same way about a point of low pressure going spirally and inward and always in a counter clockwise direction. Air currents about a high pressure point flow spirally and outward and always in a clockwise direction. The speed of these air currents, or in other words the force of the wind, is in direct ratio to the slope from the peak to the valley or the amount of difference between and the proximity of the high and low. A high which is not very high and a low which is not very low and considerable distance apart will have hardly any flow of air from one to the other, but a very low point with a high point or high points nearby will result in a very rapid flow of air or a strong wind flowing spirally toward the center of the low as illustrated by a tropical storm or a Western hurricane or cyclone. The areas of low pressure are known as cyclones and the areas of high pressure are known as anti-cyclones.

The location of the highs and lows is ascertained every day by the Weather Bureau and the easterly advance can be easily watched. The method of ascertaining this is fairly simple. At the same hour every day a barometer and thermometer reading is taken as hundreds of stations, throughout the country. The barometer readings are corrected to sea level, which means making allowances for elevations and temperature. Then the readings are noted upon a map at all the stations and the stations with the same reading are connected by a line. These lines are known as Isobars. Also the stations with the same temperature are connected with a dotted line and these lines are known as Isotherms. The drawing of the Isobars immediately reveals the highs and lows, their proximity to each other and the steepness of their slopes. The slope is known as the Barometric Gradient. Accompanying the report from the stations is a report of the wind, its direction and force and this is shown on the map by an arrow placed in the proper direction.

(Continued on page 226)

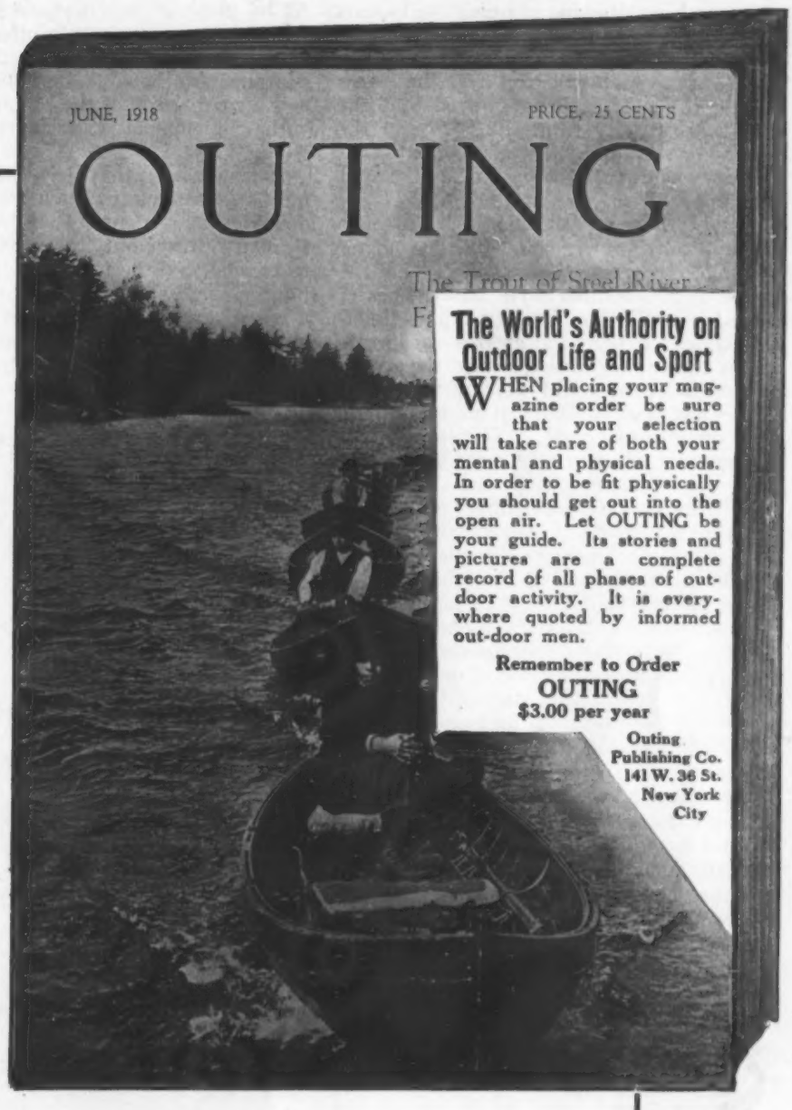
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Figure 1 is a drawing in which the Isobars form circles around the high and low points and the arrows indicate the wind direction. This low and high will pass over the places A, B and C. If at B we noticed that the wind was steadily from the SSE and the barometer was falling it would indicate that the low was directly west of us and that it would pass directly over us in a due easterly course. If, however, the wind was due south at B and constant with a lowering barometer we can see by tilting the drawing so that the arrows at B point due north that the center of the low is WNW of us and will pass directly over us. If the wind at B is constantly SE, by tilting the drawing so that the arrows pointed NW, we would see that the center of the low was WSW from us and would pass directly over us. Therefore, it is obvious that whenever the wind is constant from one direction and the barometer steadily falls we are in the direct path of the low and that when it is passed the wind will blow in exactly opposite direction. If we were at A we would notice that with a falling barometer the wind as first SE and steadily shifted to E, then NE and to N and NW we would know that the center of the low was passing to the south of us, so we can see that whenever the wind shifts to NW by way of N with a falling barometer the center of the low is passing to the south of our position. If we were at C and we noticed the wind was S with a falling barometer and shifted by way of SW and W to NW we would know that the center of the low had passed to the north of us, and it is true that whenever the wind shifts by way of S, SW, and W to the NW the center of the low has passed to the north. A glance at the diagram will also illustrate the following simple rule: "With a falling barometer stand with your *back* to the wind and the center of the low will be six points, or seventy degrees, to your *left*."

The highs and lows, as shown on the weather maps, are rarely seen as shown in the drawing, but the Isobars usually form ovals with irregular contours and often cover considerable territory, sometimes one high and low covering the entire United States, and on the other hand a low may cover a very small space with a steep Barometric Gradient, as seen in Tropical storms. In winter the highs and lows pass over the earth much more rapidly than in summer, which accounts for the sudden and severe changes experienced in winter, and for the often uncertainness of the weather in the summer with fairly long periods of variable or no winds.

Forecasting the weather is not a matter of a good guesser or some special almanac, but is a science requiring study and application, and we need no better endorsement than the realization of the fact that the predictions of the Weather Bureau are eighty-five per cent. correct.

TO make a good forecast it is essential that the observer take into consideration the direction and force of the wind, appearance of the sky, humidity of the air and a comparison of the barometer readings with the indicated pressure for several days.

It is admitted that it is impractical for a motor boatman to have with him the delicate instruments used by a Weather Bureau Station but it is perfectly possible to have a good thermometer, barometer and hygrometer which will prove ample for a very accurate forecast of the weather changes. Of course it is assumed that there is a compass for determining the direction of the wind.

What kind of weather does a night like this forecast?

WIND is the most important factor in weather and the shifting of the wind is the most trustworthy of weather indications for coming changes though in the warm months the winds are often light and variable and the changes in direction have not quite the same importance as in the colder months. Wind always takes the name of the point of the compass *from which* it comes and to accurately determine this when under way one should use the Wind Tables or stop the propeller for a few minutes and have no way on.

As a matter of general interest I will briefly mention that the Trade Winds are caused by a constant flow of air from the Tropical High pressure area to the Equatorial Low pressure area. The Monsoons of India blow for half the year toward the sea and for half the year toward the land. Land and sea breezes are caused by the effect of heat upon land and water. When the same amount of heat falls on land and water surfaces the temperature over the land is raised nearly twice as many degrees as over the water so that along a coast the differences in the temperature over the land and water produces movements of the air in a regular way. During the day the land becomes heated which causes the air to become rare and the air from the sea flows toward the land, making what is known as a Sea Breeze. At night the land loses its heat and the water remains warm causing the reverse condition and the air flows toward the sea making what is known as a Land Breeze.

As a rule winds from the East quadrant with falling barometer indicate foul weather and winds shifting to the West quadrant indicate clearing and fair weather. South winds bring warmth, North winds cold, East winds in middle latitudes indicate the approach of a Low from the westward and West winds show that the storm area has passed to the eastward. A rule worth remembering is the following: When the wind comes up with the Sun it is likely to go down with it but when the wind rises as the Sun sets it is likely to blow all night and probably the next day.

The following is a table showing the force of wind per square foot at different rates of speed:

Miles per hour	Force, lbs. per sq. foot	oz.
3		¾
18	1¼	
35	6	
50	13	
75	28	
90	40	

The following is the Beaufort Scale used in the preparation of all weather and wind forecasts and storm warnings by the Weather Bureau. Please note the force of the wind is measured in a scale from zero to twelve.

BEAUFORT SCALE

Force	Designation	Miles per hour
0	Calm	From 0 to 3
1	Light air	Over 3 to 8
2	Light breeze or wind	Over 8 to 13
3	Gentle breeze or wind	Over 13 to 18
4	Moderate breeze or wind	Over 18 to 23
5	Fresh breeze or wind	Over 23 to 28
6	Strong breeze or wind	Over 28 to 34
7	Moderate gale	Over 34 to 40
8	Fresh gale	Over 40 to 48
9	Strong gale	Over 48 to 56
10	Whole gale	Over 56 to 65
11	Storm	Over 65 to 75
12	Hurricane	Over 75

"If the wind comes before the rain,
Lower your topsails and hoist them again.
If the rain comes before the wind,
Lower your topsails and take them in."

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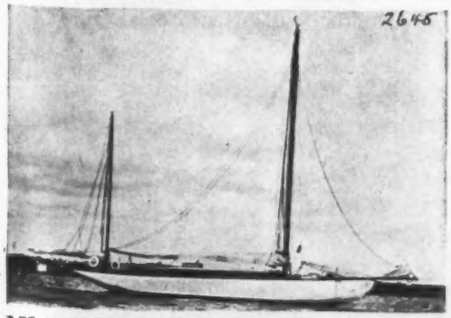

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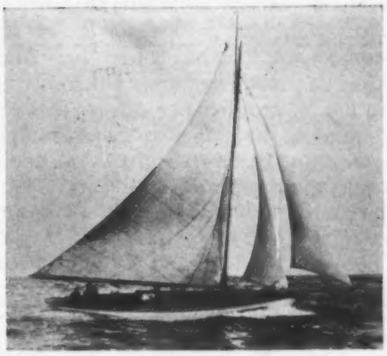

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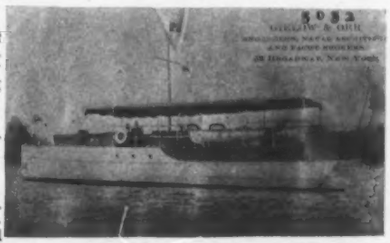

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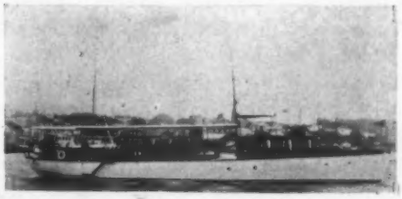

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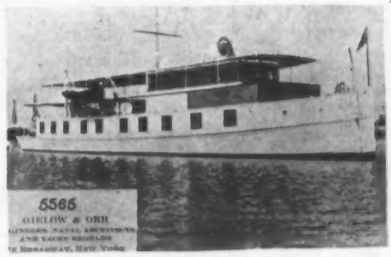
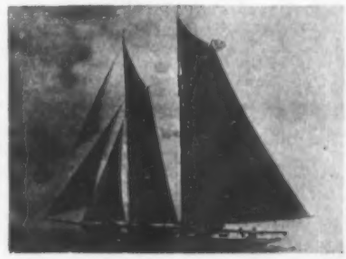


NO. 5565—SALE—CHARTER—Modern 85' motor house boat. Draft 30", built 1916 for Florida cruising. Standard motor. Speed 9 miles. Two double two single staterooms, all modern plumbing and fittings. Most desirable boat for Florida available. Can be chartered and for sale at bargain price Inspectable Florida. Gielow & Orr, 52 Broadway, New York City.



NO. 1640—FOR SALE—EXCEPTIONAL BARGAIN—85 foot modern keel and centreboard Lawley built schooner, flush deck, lead keel, three staterooms beside main saloon, all excellent condition and fully equipped. Boat has been kept up strictly as a yacht in first class manner. Owner will sacrifice. Gielow & Orr, 52 Broadway, New York City.

NO. 5455—FOR SALE AND CHARTER—Attractive shoal draft Florida cruiser. 45' length, 14' beam, 34" draft. Six cylinder heavy duty motor. New 1916. Speed ten miles. Large double stateroom and saloon. Sleep four besides crew. Awning full length. Exceptional deck room and ventilation. In commission. Perfect condition throughout. Price low. Gielow & Orr, 52 Broadway, New York City.

THE barometer is an instrument for the measuring of the weight of the atmosphere and the principles of the instrument were discovered by Torricelli in 1643. He found that when he filled a glass tube (which was closed at one end) with mercury and inverted it in a bowl of mercury that the weight of the air on the mercury in the bowl would support the mercury in the tube to a height of thirty inches. All standard barometers are of the mercury type and the readings on all barometers represent inches of mercury. The weight of the atmosphere is not measured in pounds or ounces but in inches of mercury. For our use the anaroid barometer of good make is much better than a mercury type as the anaroid is very accurate and is compact and easily handled. At least once a year the anaroid barometer should be compared with a standard barometer and set with it, and the best way to do this is to take it to a weather bureau station and the officials will gladly make the adjustment. Another possible error is the difference in the range of activity of an anaroid and a standard barometer. That is, in certain parts of the scale the anaroid may rise or fall more or less than the standard and the best way to determine this is to have the barometer near at hand and at the same hours in the day for which the standard readings are published take the reading of the anaroid and compare the range of activity but not the actual reading for the standard is corrected to sea level and your instrument will probably be in your home or office and at some elevation above the sea. This study of relative activity had best be from 29.20 inches to 30.60 inches which is as much of a range as we will usually need to know about. The best time of the year to make this study is in winter when there is the most active changes and the greatest range of rising and falling atmosphere pressure. The weather words usually found on the face of an anaroid barometer are meaningless and worthless and should be disregarded and the ideal face of an anaroid should be perfectly plain.

In using a barometer it is important to realize that a single observation of a barometer without reference to the readings at definite intervals preceding is not only useless but liable to be misleading. Therefore it is very necessary to keep a written record of the barometer readings at stated intervals during the twenty-four hours. Another important fact often overlooked is that the barometer usually foretells rather than indicates weather that is present, foretelling changes as much as twelve to twenty-four hours in advance.

In forecasting remember that "The possibility is always for a continuance of existing weather unless some phenomenon presents itself which foretells a change."

In regard to the barometer readings, the important points to know are, has the rise or fall been gradual or rapid or if stationary how long has it been so. And in making barometer readings remember that there is a natural change of pressure every day because the principal maximum pressure occurs at 10 a. m. and 10. p. m., and the principal minimum pressure occurs at 4 a. m. and 4 p. m., amounting to .05 of an inch. Therefore, if the barometer shows a fall of .05 between 10 a. m. and 4 p. m. it really means a stationary barometer. This allowance should be made to form an accurate opinion of the barometer change.

A stationary barometer indicates a continuance of existing conditions, but a slight tap on the barometer face will likely move the hand a little indicating the tendency to rise or fall. A rapid rise or a rapid fall indicates that a strong wind is about to blow with a change in the weather, the nature of the change depends upon the direction of the wind. The rapidity of the storm's approach and its intensity will be indicated by the rate and amount of fall in the barometer.

A fall of .02 inch per hour is considered a low rate of fall.

A fall of .05 inch per hour is considered a high rate of fall.

A rate of .10 inch might be reached and a rate of .20 has been recorded.

In the tropics a fall of more than .02 is considered dangerous and the following table shows the distance of the storm center from the vessel by the average rate of fall.

Average fall of barometer per hour	Distance from storm center
From .02 to .06 inch	From 250 to 150 miles
From .06 to .08 inch	From 150 to 100 miles
From .08 to .12 inch	From 100 to 80 miles
From .12 to .15 inch	From 80 to 50 miles

When the barometer falls considerably without any particular change of weather a violent storm is raging at a distance. And the barometer falls lower for high winds than for heavy rains.

The barometer falls for Southerly winds (including from S. E. by S. westward), for wet weather, stronger wind or for more than one of these changes, except on a few occasions, when moderate wind with rain or snow comes from the northward. If the barometer falls slowly for several days during fine weather, expect considerable rain. A lowering barometer and rising thermometer indicate heavy rain. A very low barometer is usually attendant upon stormy weather with wind and rain at intervals but the latter not necessarily in any great quantity. Should the barometer continue low when the sky becomes clear, expect more rain in twenty-four hours. If the weather, notwithstanding a very low barometer, is fine and calm it is not to be depended upon as a change may come very suddenly.

For middle latitudes (standard readings):

29.50 and thereabouts is very low.

30.00 inches is an average pressure.

30.50 inches is high.

The barometer rises for northerly winds (including from N. W. by N. to eastward) for dry or less wet weather, for less wind, or for more than one of these changes except on a few occasions when rain, hail or snow comes from the northward with strong winds. If the barometer continues rising while wet weather continues, the weather after a day or two will probably be fair for some time, and when the barometer and thermometer rise together it is a very sure sign of coming fine weather.

A gradual but steady rise indicates settled weather.

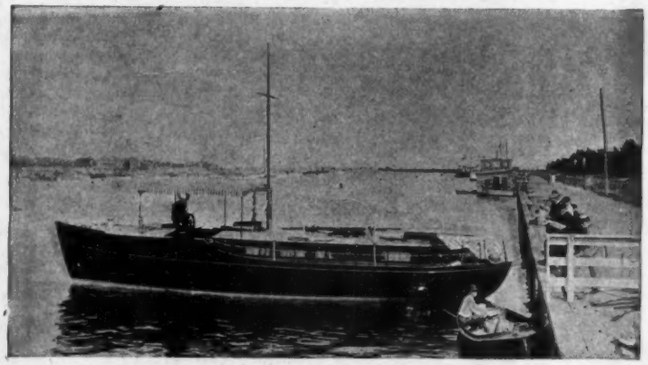
A gradual but steady fall indicates wet or unsettled weather.

A very slow rise from a low point is usually associated with high winds and dry weather.

A rapid rise indicates clear weather with high winds.

A very slow fall from a high point is usually associated with wet and unpleasant weather without much wind.

Viva is Powered with a "Motor That Motes"



VIVA, a 50 foot by 10 foot cruiser, is powered with a 6½ in. by 7 in., 3 cylinder, 4 cycle Bridgeport motor which propels her at a speed of 10 miles an hour. The craft is owned by Mr. Arthur Pettit of New York

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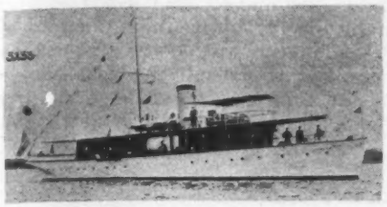
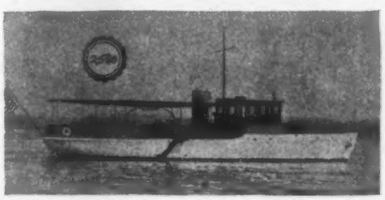
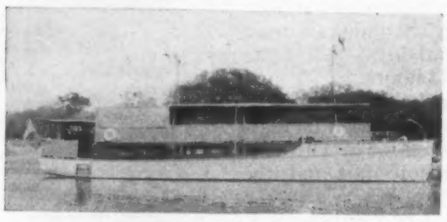
We have a complete list of steam, gasoline and sail yachts, auxiliaries and houseboats for SALE and CHARTER. Kindly let us know what your requirements are, and we will gladly submit photographs, plans and full description of craft nearest approaching your ideas.



NO. 3233—FOR SALE—Particularly desirable 123 ft. steel steam yacht. Speed up to 17 miles. Recent build. Dining saloon and social hall on deck; five staterooms. two bathrooms, etc. Best craft of type and size available. Cox & Stevens, 15 William St., New York.

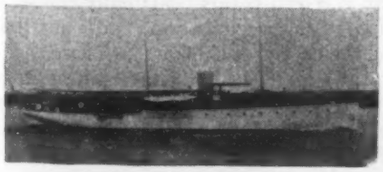


NO. 2580—FOR SALE—Light draft, Lawley built, 68 ft. twin screw power yacht. Speed 11-13 miles. Enclosed deck house with dining saloon below forward; two double staterooms aft. Practically in commission. Cox & Stevens, 15 William Street, New York.

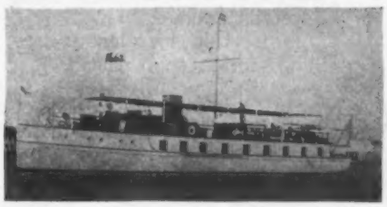


NO. 3570—FOR SALE OR CHARTER—Roomy power cruiser; 66x15.4x3 ft. 10 in. Built 1914. Speed 10-11 miles; 60 H. P. 6 cyl. motor, electric lights, etc. Large accommodation including two double staterooms, saloon 14x8 ft., bath, two toilets, etc. Unusual deck space. Practically in commission. Cox & Stevens, 15 William Street, New York.

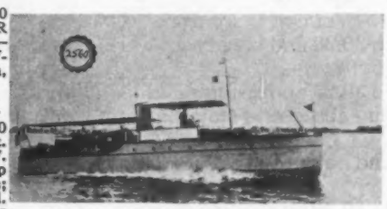
NO. 1674—FOR SALE—Attractive 85 ft. modern power yacht. Speed 13-15 miles. Excellent accommodation. Splendid opportunity to secure high grade craft at extremely low figure. Cox & Stevens, 15 William Street, New York.



NO. 2030—FOR SALE OR CHARTER—Modern, very roomy, twin screw power yacht, 124 x 18.6 x 6 ft. (Now has after deckhouse). Very economical to operate. Large dining saloon and social hall on deck; main saloon, six staterooms, two bathrooms and three toilets aft. Handsomely finished and furnished. Cox & Stevens, 15 William Street, New York.

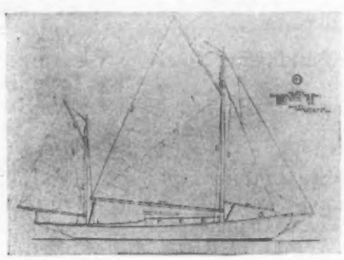


NO. 1662—FOR SALE OR CHARTER—Attractive 90 ft. twin screw gasoline houseboat; speed 10-12 miles. Large saloon, four staterooms, two bathrooms; all conveniences. Handsomely furnished. Cox & Stevens, 15 William Street, New York.



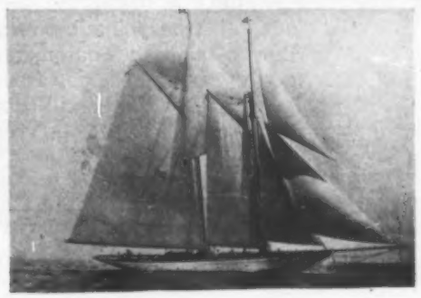
NO. 2560—FOR SALE—Fast, V-bottom, twin screw power cruiser; 60 x 13 x 3 ft. Built 1917. Speed up to 18 miles; two 6 cyl. Sterling motors. Double stateroom forward; roomy saloon aft with separate galley; two toilet rooms (one with Sitz bath). Low price for quick sale. Cox & Stevens, 15 William Street, New York

NO. 3241—FOR SALE—Light draft, roomy bridge deck cruiser; 48x14x3 ft. Speed 10 miles; 6 cyl. 4 cycle motor. Built 1915. Double stateroom, saloon, two toilet rooms, etc. Cox & Stevens, 15 William Street, New York.

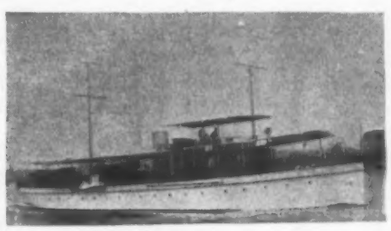


NO. 3211—BARGAIN—Up-to-date, centerboard auxiliary yawl; 40 x 32 x 10 x 3.8 ft. Built 1913 from our designs. Cabin trunk and deck trim of teak. Two berths in cabin, toilet room, etc. Speed under power 9 miles; 25-40 H. P. Sterling motor (new 1915). Excellent opportunity. Cox & Stevens, 15 William St., New York.

NO. 3035a—FOR SALE—Fast and very roomy bridge deck cruiser; 47x10x3 ft. Speed 16 miles; 100 H.P. 6 cyl. 4 cycle motor. Separate galley, saloon and single stateroom forward, besides double stateroom and toilet room aft. Electric lights. First class condition. Cox & Stevens, 15 William Street, New York.



NO. 3561—OFFERED BY ESTATE—Lawley-built, flush deck, keel auxiliary schooner yacht, 90 ft. overall. Recent build. Saloon, three staterooms, bathroom, etc. Ratsey sails. Speed under power 6 to 7 miles. Exceptional opportunity. Cox & Stevens, 15 William St., New York.



NO. 1796—FOR SALE OR CHARTER—Very roomy, light draft, twin screw cruising power yacht, 99 x 17 x 4 ft., adapted for Florida service. Speed 12-14 miles; Standard motors. Large dining saloon, six staterooms, three bathrooms; all conveniences. Cox & Stevens, 15 William Street, New York

NO. 3541 — FOR SALE OR CHARTER — Particularly desirable 100 ft. steel twin screw cruising power yacht. Practically in commission; very attractively finished and furnished. Speed up to 15 miles; two 6 cyl. air-starting and reversible Standard motors. Fitted with every convenience. Large dining saloon and social hall on deck; five staterooms, bath, two toilet rooms, etc. Without doubt finest craft of type and size available. Cox & Stevens, 15 William Street, New York.

NO. 148—FOR SALE—Steel, flush deck, steam auxiliary schooner yacht; 130 ft. overall, 110 ft. Waterline, 26 ft. beam, 15.6 ft. draft. Speed under power 9knots; compound engine; electric lights; all conveniences. Extremely able craft; heavily constructed. Cox & Stevens. 15 William Street, New York.

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A sudden fall indicates a sudden shower or high wind or both.

When the air becomes colder and drier with a rising barometer, it is pretty certain that a north-east wind is coming.

When the air gets warmer and damper with falling barometer, it is safe to infer that a south-west wind is at hand.

When the wind sets in from points between east and north-east and the barometer falls steadily, a storm is approaching from the south or south-west, its center will pass near or to the south or east of the observer within twelve to twenty-hour hours, with wind shifting to north-west by way of north.

When the wind sets in from points between south and south-east and the barometer fall steadily, it indicates a storm approaching from the west or the north-west. Its center will pass near or to the north of the observer within twelve to twenty-four hours, with the wind shifting to north-west by way of south-west and west.

A good anaroid barometer will indicate the height of a table.

The indications afforded by the wind and barometer are the best guide we now have for determining future weather conditions.

"When glass falls low
Prepare for a blow.
When it rises high
Let all your kites fly."

"First rise after low
Foretells stronger blow.
Long foretold, long lasts
Short notice, soon past."

RAIN: In taking up the subject of rain the first thought I wish to convey is that we must think of the air as a sponge in its ability of holding moisture and taking up moisture. A sponge can be anywhere from slightly damp to very wet without dripping and the air can be from slightly humid to very humid without precipitation. The amount of humidity is expressed in per cent., meaning the per cent. of the air's capacity for moisture. A humidity of sixty per cent. is considered good. A dense firm sponge will be able to hold more water without dripping than a light, flimsy sponge and so it is with the air, for air that is dense and heavy with a high barometer can hold more water than air that is rare with a low barometer. Therefore if the humidity is high and the barometer starts to fall the capacity of the air for moisture is lessened and the moisture will precipitate and fall as rain. It is a fact that from the Mississippi and Missouri valleys to the Atlantic Coast and on the Pacific Coast rain generally begins on a falling barometer. However, in the warmer months summer showers and thunderstorms usually come about the time the barometer turns from falling to rising. (It is important to note this exception to the above rule: In the Rocky Mountains and Plateau districts and great Western plains practically during the entire year precipitation does not begin until the center of the low has passed to the eastward and the wind has shifted to the northern quadrant with a rising barometer.) Another point that must be borne in mind is that warm air has a much greater capacity for moisture than cold air and that precipitation occurs when moist air is cooled below the dew point as rain, snow, hail or frost.

(Continued on page 234)

Wind Barometer Table of the U. S. Weather Bureau

Wind direction	*Barometer reduced to sea level*	*Character of weather*
S. W. to N. W.	30.10 to 30.20 and steady	Fair, with slight temperature changes for one or two days.
S. W. to N. W.	30.10 to 30.20 and rising rapidly	Fair followed within two days by rain.
S. W. to N. W.	30.20 and above and stationary	Continued fair with no decided temperature change.
S. W. to N. W.	30.20 and above and falling slowly	Slowly rising temperature and fair for two days.
S. to S. E.	30.10 to 30.20 and falling slowly	Rain within twenty-four hours.
S. to S. E.	30.10 to 30.20 and falling rapidly	Wind increasing in force, with rain within 12 to 24 hours.
S. E. to N. E.	30 10 to 30.20 and falling slowly	Rain in 12 to 18 hours.
S. E. to N. E.	30.10 to 30.20 and falling rapidly	Increasing wind and rain within 12 hours.
E. to N. E.	30.10 and above and falling slowly	In summer with light winds rain may not fall for several days. In winter rain in 24 hours.
E. to N. E.	30.10 and above and falling fast	In summer, rain probably in 12 hours. In winter, rain or snow, with increasing winds will often set in when the barometer begins to fall and the wind set in N. E.
S. E. to N. E.	30.00 or below and falling slowly	Rain will continue 1 or 2 days.
S. E. to N. E.	30.00 or below and falling rapidly	Rain with high wind, followed within 36 hours by clearing and in winter colder.
S. to S. W.	30.00 or below and rising slowly	Clearing in a few hours and fair for several days.
S. to E.	29.80 or below and falling rapidly	Severe storm imminent, followed in 24 hours by clearing and in winter colder.
E. to N.	29.80 or below and falling rapidly	Severe N. E. gale and heavy rain, winter heavy snow and cold wave.
Going to W.	29.80 or below and rising rapidly	Clearing and colder.

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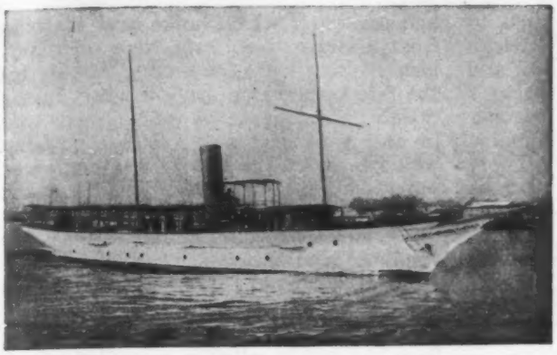
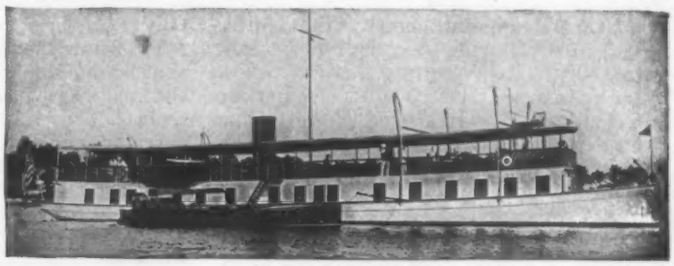
OFFER FOR SALE THE FOLLOWING YACHTS, A NUMBER OF WHICH ARE AVAILABLE FOR CHARTER



NO. 7987—FOR SALE OR CHARTER—Modern cruising motor yacht 106 x 13.6 x 6 ft. draught. Built 1911. 300 H. P. Standard motor; speed 13 knots; 4 staterooms, saloon below, deck dining saloon, bath room, 2 owner's water closets. Lighted by electricity. Large quarter and bridge decks. Full data from Tams, Lemoine & Crane, 52 Pine St., New York.



NO. 1848—SALE—CHARTER.—Modern houseboat, ideally suited for southern waters, 123 x 115 x 17.8 x 3.4 ft.; 2 Standard motors, 4 large staterooms, 2 bathrooms, saloon; very large shade deck; lighted by electricity and has new ice machine. Full particulars from Tams, Lemoine & Crane, 52 Pine St., New York.

NO. 8940—FOR SALE.—Exceptional opportunity to purchase at a bargain, raised deck cruiser, 61 x 12.10 x 3.6 ft. draught, built 1909, 2-40 H. P. Knox motors new 1912, lighted by electricity. Excellent owner's accommodations. Further particulars from Tams, Lemoine & Crane, 52 Pine St., New York.

NO. 6054.—Auxiliary caravel yacht, the most picturesque houseboat in America; extraordinary accommodations on deck and below. Should be seen to be appreciated; a comfortable, safe cruiser. Has covered the coast between New York and Bar Harbor several times. If stripped of her caravel rig and high bulwarks and rails, the hull would still make a most desirable houseboat. Further particulars from Tams, Lemoine & Crane, 52 Pine Street, New York.

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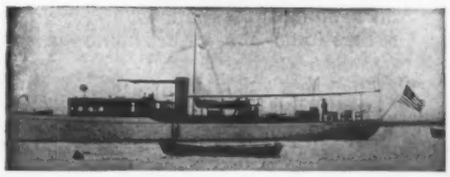
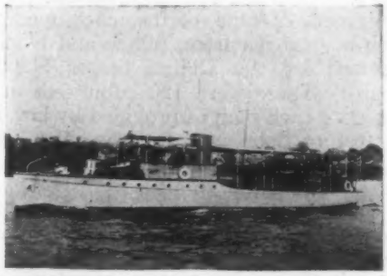
NO. 1937—Diesel Power Yacht, 110 ft. by 18, two 6 cylinder 150-180 H. P. engines; low fuel cost. Apply William Gardner & Co., 1 Broadway, New York.

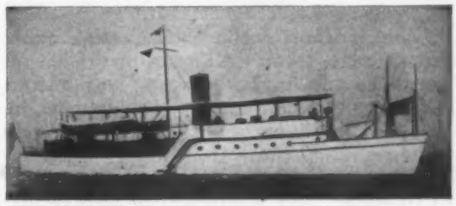


NO. 1081—FOR SALE—Twin screw 90 ft. power yacht, splendid accommodation. Recently overhauled and two new Standard 4 cylinder 75 H. P. each, installed 1916. Exceptionally able and fully found. Apply William Gardner & Co., 1 Broadway New York.

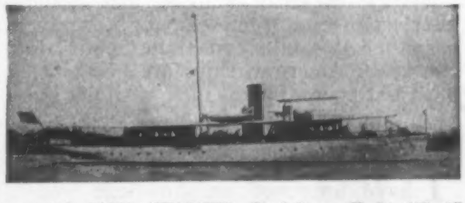
NO. 2243—Practically new, twin-screw 60 foot express cruiser, Sterling engines, speed 22 miles. Apply William Gardner & Co., 1 Broadway, New York.



NO. 1738—Raised Deck Cruiser, 65' x 11', six cylinder motor; good accommodation. Apply William Gardner & Company, 1 Broadway, New York.



NO. 924—Power Yacht, 92 ft., six-cylinder 20th Century motor recently overhauled, good deck space. Apply William Gardner & Co., 1 Broadway, New York.



NO. 646—SALE—CHARTER—Steel Steam Yacht, 123 x 17, two large deckhouses, five staterooms, etc. Condition good as new. Apply William Gardner & Co., 1 Broadway, New York.

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Merchant Ships' Sailors Quarters and Fare

An Interesting Comparison of Living Conditions on Shipboard in the Old Days and Today

RECENT appointment by the United States Shipping Board of inspectors, attached to its recruiting service, whose business is to see that the crews of American merchant vessels get all the comforts that are due them, has served to attract attention to the conditions under which the crews work aboard the ships of the new Merchant Marine.

Contrasts between living and working conditions aboard merchant vessels to-day and "the good old days" of the sail, as regards the crew, are startling and all in favor of the present. Jack is now treated with consideration, and lives better, on the average, than he would live if working ashore.

As four thousand young men from factory and farm are now going into the Merchant Marine every month through the Shipping Board's training service public interest in the way the men live aboard the nation's new cargo ships is taking on a personal aspect. The Shipping Board is receiving frequent inquiries on the subject. Mothers and sisters and wives—to say nothing of sweethearts—want to know if their sailor boys are getting good food and proper beds, and they are not at all backward in asking for specific information on the subject.

As a veil of secrecy is thrown about shipping in these war times, to protect our fleets from spies, it is not possible for Uncle Sam to take all these inquiring friends of the sailor aboard ship and give them direct evidence of how well their sailor lads are being used.

For that reason the Shipping Board is taking special pains to inform the public of conditions on ships under its control—and that means all vessels under the flag of more than 2500 tons. As comforts on smaller ships, as well as on the large ones, are regulated by law, it is safe to assume that every American sailor to-day is far better off than sailors have ever been before.

The U. S. Shipping Board is now confining its activities in behalf of merchant crews to legal requirements, however. Finding that mines, liberally strewn at random by the Germans in violation of the rules of civilized warfare, usually explode under the forward part of the vessel striking them, the living quarters of crews have been removed from forward to aft.

Forecastles used as living and sleeping quarters for an entire crew having been proven sometimes unsanitary when the crew is large, the latest American ships are being fitted with staterooms for the men, with not more than four men to a room.

TO understand how conditions in general have improved on American vessels since the old days of the square-riggers, it is only necessary for the average citizen to read of how the crew lived on an American ship bound round Cape Horn in 1836, and contrast what he has read with an inspector's report of conditions on a cargo steamer operated under authority of the Shipping Board to-day. Dana's "Two Years Before the Mast," a classic among sea narratives, is authority for conditions in 1836.

OFF CAPE HORN

Rough seas where set the close reefed sails
'Fore driving sleet and snow,
Where on the lee, in polar gales
That merchant sailors know,
The flying spume sends white on high
Against that weathered crag,
Where surging seas bound swiftly by
And warning kelp streams drag.

Rough seas 'cross which the fulmar gulls
Soar screeching on the storm,
Where snow clad peaks break through the lulls;
The bolsters of the Horn.

'Tis there they turn the Southern
Where bend their world-long wayeee,
And merchant sailors once more self
The thrill of older days;
Of days when Schouten doubled round,
And Drake sailed to the west;
Of goosewinged tops'ls, outward bound,
And running 'fore the crest
Of seas that chase the homeward sails
On hulls that roll and yaw;
Of weeks of fight through living gales,
Where life runs in the raw.

Rough seas where ends the polar night,
And sun dogs greet the morn;
Ghost halos in the morning light
Beyond the storm wracked Horn.

FELIX RIESENBERG.

Dana, author of the book quoted, made the passage from California in 1836, on board the ship Alert which was considered a smart, well-found vessel. Here is what he says of the living quarters of the crew while rounding Cape Horn:

"The forecastle was too uncomfortable to sit up in, and whenever we were below, we were in our berths. To prevent the rain and sea water which broke over the bows from washing down, we were obliged to keep the scuttle (in the deck) closed, so that the forecastle was nearly airtight. In this little wet, leaky hole we were all quartered, in an atmosphere so bad that our lamp, which swung in the middle from the beams, sometimes actually burned blue, with a large circle of foul air about it."

"The usual meal, day after day, for men standing hard watches in icy blasts, snow and hail, was a pot of hot tea, a hard biscuit and a slice of cold salt beef."

The beef was brought to the forecastle from the cook's galley in a wooden tub, or "kid." Tea or coffee was served to each man in his own tin pot, which he took to the galley. There was no table in the forecastle, and no knives and forks, the men helping themselves to the beef by cutting off chunks with their sailors' knifes. Each man's eating utensils, besides the knife—with which on occasion he also cut tobacco or tarred rope—consisted of "a tin pot and pan, with an iron spoon."

As to sanitary conditions, they may be judged by this entry in Dana's log covering the passage of the Cape, which lasted a month:

"Not a razor, nor a brush, nor a drop of water, except rain and spray, had come near us all the time; for we were on allowance of fresh water; and who would strip and wash himself in salt water on deck, in snow and ice, with the thermometer at zero?"

The writer says the crew was healthy in spite of all this, which spoke well for American stamina; but later in his narrative he tells how scurvy overtook them in the North Atlantic, and only a providential supply of potatoes and onions, secured from a passing ship, saved its victim from death.

WHAT is the picture of conditions on shipboard to-day, contrasted with this? Here is a paragraph from a Shipping Board inspector's report on the living quarters aboard a 5000-ton cargo steamer built in 1917 by the Emergency Fleet Corporation and engaged in overseas traffic:

"The crew's quarters were aft. They contained 12 pipe berths, each made up with a good mattress, pillow and blankets supplied by the United States Shipping Board. There were 120 cubic feet of air space for each man as provided by law, and 16 feet of floor space. Each man had a berth of his own, and not more than two berths were placed in a tier.

"The forecastle was situated aft, out of danger from mine explosions. It was ventilated by three large ports, and lighted by electric lights. Each man had a steel full-length

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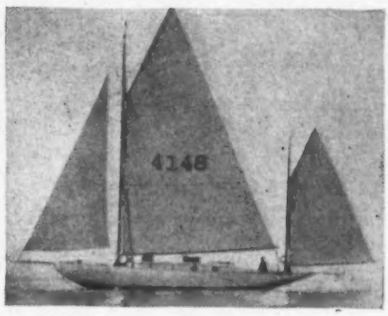

No. 4148. Auxiliary keel yawl 46′ x 32′ x13′x 6′ Double stateroom and saloon sleep five. 15H.P. Sterling Motor. Speed 7 miles. Splendid proposition.
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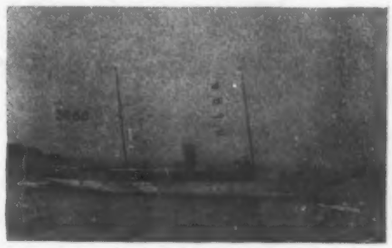
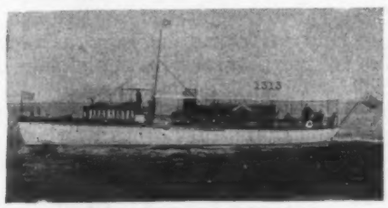
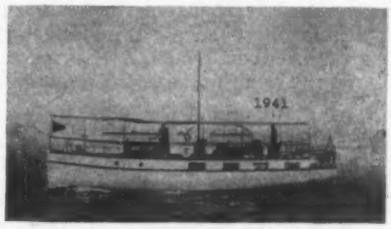


NO. 3068. 145 foot steel steam yacht. Four staterooms, dining saloon, social hall, baths, etc. Steam heat, electric lights, etc. Speed 16-18 miles. Apply H. H. Jennings Company, 1 Broadway, New York City, N. Y.



NO. 1313. High class power yacht. 75′ x 68′ 4″ x 13′ x 3′ 6″, built by Elco Company. Three staterooms, saloon, bath, etc. Standard Motor. Speed 11–12 miles. Electric lights. Apply H. H. Jennings Company, 1 Broadway, N. Y. C.



NO. 1941—SALE OR CHARTER—Semi-houseboat and cruiser 52′ x 14′7″ x 3′. Large stateroom and main cabin. Sleeps six. 32-37 H.P. Standard Motor. Speed 9-10 miles. Electric lights, etc.

NO. 1869. 42 foot cruiser. Built 1913. Double stateroom and two berths in main cabin. Berth in engine room. 24-30 H. P. 20th Century Motor. Speed 10-12 miles. Electric lights, etc. Apply H. H. Jennings Company, 1 Broadway, New York City, N. Y.

locker for his clothes. There were shower baths for both sailors and firemen.

"The ship was fitted with a tank for iced drinking water, to which the crew had access at all times.

"Meals were served in a mess room, or dining saloon, the crew and the firemen each having a mess of their own, with a messman to serve their food. The table was clean, with good china and other accessories. At the time of my visit there were fresh peaches and tomatoes on the table, which was being set up for supper."

The luxury of this would have upset an old-time sailor man, who, when a heavy wave washed the crew's kid of beef over the lee rail in its passage from the galley, was forced to go supperless to bed.

An interesting sidelight on the victualing of modern crews is afforded by the fact that in these times the same bill of fare is served in forecastle and cabin on American ships. Jack gets just as much and just as good food as the officers. The bill is made out by the Food Administration at Washington, and is the same for all ships under the flag.

THE bill of fare which accompanies the report quoted shows that Jack fares better at sea than many of the government clerks at Washington, who rely upon boarding houses and restaurants for their daily bread.

Here is a sample Monday morning breakfast:—

Hominy and milk. Hot beef steak. Hot boiled potatoes. Bread and butter. Coffee.

This is Tuesday's dinner:—

Barley soup. Roast mutton. Lima beans. Hot boiled potatoes. Bread and butter. Pread and butter pudding.

Thursday's supper is as follows:—

Baked pork and beans. Corned beef hash. Hot boiled potatoes. Cheese. Stewed fruit. Bread and butter. Tea.

Sunday's dinner bill calls for tomato soup, stewed chicken and vegetables and plum pudding. Butter is served at all three meals, and milk and sugar with coffee.

The report quoted continues:

"The cooking on this ship was found to be first class, the food being well prepared and palatable. The cooks were young and intelligent, and took great pride in their work."

In order that the supply of cooks for the country's merchant ships shall not fall below the greatly increased requirements of the new fleet, the Shipping Board is conducting two schools for cooks and bakers on specially fitted ships stationed at Boston and New York respectively, and is also teaching cooking to apprentices on its eight other training ships.

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Nature's Provision for an Inland Atlantic Waterway

RESOLUTIONS adopted at the War Convention held in Atlantic City, N. J., recently, recommending the construction of a waterway to parallel the Atlantic Coast, points out that Nature has provided along this coast, sounds and bays for a sea level route comprising about 85 per cent of the distance between Massachusetts Bay and Beaufort, S. C. Therefore, to obtain this urgently needed improvement, it requires only the deepest of those channels which form the short connecting links from Raritan Bay to the Delaware River across New Jersey, about thirty miles, more or less, and also across Delaware and Maryland from the Delaware River to Chesapeake Bay, say about thirteen miles.

To give this nation this valuable waterway, moreover, safe from enemy attack in war time and of incalculable value in peace time, it is estimated, will cost less than it would to build a single battleship.

Less Hours—Longer Life

"THE more men we preserve in industry, the more lives are lengthened and the more we have for production," said Secretary of Labor Wilson at a conference of state and federal officials called to consider the enforcement of labor laws.

"It has been variously estimated that six to ten workers in the rear are necessary to maintain a soldier in the trenches," he said. "That has made industry a much more important factor than it has ever been before.

"There has been an agitation for lowering of standards—or the argument that it would increase production. The assumption of a demand that a nine-hour day be substituted for an eight-hour day in mines arose from that. We found that anthracite coal miners working eight hours in 1917 were producing 2 per cent more coal than during 1915 and 1916 in a nine-hour day. In some industries, of course, this might not be true. But reduction of hours is not solely for the purpose of increasing productivity. It is designed to protect the worker in his leisure. Every effort that we can make is utilized to protect the life and health of the men in the trenches. If we can save life of the man before he reaches the trenches, man power is increased. Just so industry has to be safeguarded. It is just as important that we protect those engaged in industry as those on the battle-field. The more we preserve the more we have for production."

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The Lightest Known Wood

A CONSULAR report from Port Limon, Costa Rica, gives interesting details concerning the trade of that region in balsa or corkwood (Ochroma), said to be the lightest of all known woods. It has long been used in tropical America for making canoes and a special type of raft, also known as a balsa. It is very porous and a good insulator against heat and cold, and the report above mentioned states that it would be valuable for airplane construction. The young trees are soft and very sensitive to injury from vines. The trees are dicecious, the male tree being known as burillo and the female as balas real. The shipment of balsa wood had apparently not assumed large proportions, owing to the difficulty of transporting it from its native forests to the railway.

Forecasting the Weather

(*Continued from page 230*)

Rain is preceded from 12 to 24 hours by a rise in atmospheric moisture. Without this increase in moisture the changes in barometer and temperature would not produce rain. A good hygrometer will keep one informed as to the state of humidity and is a great help in forecasting rain. However, there are two natural signs of high humidity which should be remembered. Sound travels easily through moist air so that distant sounds are easily heard which has given rise to the following couplet:

"Sound traveling far and wide
A stormy day will betide."

The other natural sign is what is known as refraction which is produced by a remarkable clearness of the atmosphere when distant objects as hills are unusually visible or raised, and based on this fact is the old proverb:

"The farther the sight
The nearer the rain."

The signs of falling weather in the colder months are: the formation of a high sheet cloud covering the whole sky, an increase in temperature and moisture of the air and the wind changing to some easterly quarter. The precise direction that the wind takes either N. E. or S. E. varies for different localities and the direction from which the storm is approaching. In New England, the Middle Atlantic States and the Ohio valley, N. E. winds precede storms approaching from the S. W. and S. E. winds precede storms approaching by way of the Great Lakes. Also during the colder months, when the land temperature is below the water temperature of the ocean, precipitation will begin along the seaboard when the wind shifts and blows steadily from the water over the land without regard to the height of the barometer. In such cases the moisture in the warm ocean winds is condensed by the cold of the continental area. During the summer months, on the contrary, the ocean winds are not necessarily rain winds for the reason that they are cooler than the land surfaces and their capacity for moisture is increased by the warmth that is communicated to them by the land surfaces. If, however, the easterly winds of summer increase in force with a falling barometer, the

(*Continued on page 238*)

The following statement made by William G. McAdoo, Secretary of the Treasury, has just been issued in Washington:

"THE Secretary of the Treasury has determined upon the issuance of a new series of War-Savings Certificates and Stamps to be placed on sale early in 1919 and to be known as the Series of 1919. The new Series will have a maturity date of January 1, 1924, and in practically all respects will be issued on the same terms and in the same manner as the present Series of 1918.

"A new $5.00 War-Savings Stamp, blue in color, bearing the head of Benjamin Franklin, the apostle of saving, and a former Postmaster General is in preparation. The new stamps will be placed on sale early in 1919.

"The same Thrift Stamps and Thrift Cards now in use will be continued in 1919 and will be exchangeable into new Series of 1919 War-Savings Stamps payable January 1, 1924, in the same way as the exchange has been made during this year into the Series of 1918 War-Savings Stamps."

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The Choice of a Boat

(Continued from page 220)

thus when you are on the port tack you must keep clear of them. I would not advise a novice in a boat on the port tack to try and cross the bow of a boat on the starboard tack unless there is plenty of room. Distances on the water are deceptive to the tyro, and it is well to run no risk of collision. If the boat on the port tack will not keep away for you when you are on the starboard tack, and seems to be making for you with the intention of running you down, keep cool. Stand by to put your helm hard down so as to luff right up in the wind or even to go about. If you put your helm up and keep away, and a collision ensues, you would probably have to pay all the damage. The strict legal rule is that the vessel on the starboard tack must keep her course and neither luff nor bear up. If this rule is observed you will be within the letter of the law. In yacht racing a yacht on the port tack can be disqualified if she is struck by a yacht which is on the starboard tack, no matter how the striking happened; if she herself strikes a yacht which is on the starboard tack; if she causes a yacht which is on the starboard tack to bear away to avoid a collision. It is apparent, therefore, that no wise helmsman will run any risks. If he is on the port tack he will give way with a good grace and try to look pleasant. It is better than a collision, which is sure in a brisk breeze to do a lot of damage, and may possibly cause serious personal injuries or even loss of life.

The beginner may, after threshing to windward for an hour or so, begin to feel homesick. Let him then put his helm up, easing the mainsheet off at the same time until he gets the boom at a right angle with the mast and the boat dead before the wind. He will at this time have to pay particular attention to the steering, giving the boat "small helm" and giving it to her quickly in order to keep her steady on her course. Steering a cat-boat in a stiff breeze and lumpy water requires both skill and experience. I should counsel a green hand to lower the peak of the mainsail and run her under easy sail until he acquires the art. In that case, should he accidentally gybe the boom over, the result is not likely to be particularly disastrous; whereas, if the sail were peaked up, the boom might snap in two or the boat herself might broach to.

The centerboard should be hoisted up into the trunk when running before the wind, and the boom should be kept well topped up. In some small cat-boats there is no topping lift and the sail has only one halyard, which hoists both the throat and peak. This is a faulty rig. Throat and peak halyards should be separate and a, topping lift should always be fitted.

I think it my duty to warn the inexperienced boat sailer against gybing his little craft. It is a maneuver that requires skill and care, especially in a brisk breeze. If you must gybe, lower the peak so as to "scandalize" the sail, and haul the boom well aboard as the helm is put up. As the wind shifts from dead astern and comes on the other quarter, carrying the boom over, ease off the sheet handsomely and take care to meet her promptly with the helm as she flies to, which is invariably the case. You can then hoist the peak up again.

If you have women and children aboard the boat, gybing should never be resorted to if the wind is strong. It is far preferable to luff up into the wind and tack and then keep off again.

In coming to anchor or picking up moorings make the boat describe a good sweep, so that she may come up in the wind and lose her way exactly where you wish. You can then either let go the anchor or pick up the moorings, as the case may be. Then lower the sail, furl it snugly, put on the sail cover, stow away everything neatly, haul taut the halyards and the mainsheet, which you should coil up, and leave everything tidy and in readiness for getting under way next time.

When, on a wind with a light breeze and in smooth water, it becomes necessary to heave to to let a boat come alongside, haul the mainsheet flat aft and haul the fore and jib sheets a-weather. If in a fresh breeze, flatten in the mainsheet, let the jib sheet flow, and haul the fore sheet a-weather.

For small open boats the anchor should weigh one pound for every foot of length up to twenty feet length. If the boat is ballasted, another half pound per foot should be added.

If you have the misfortune to get stuck fast in the mud or on a sand bank, you must act quickly. If you ground while running before the wind, lower your sails at once. If you have a dinghy, run out your kedge anchor, with a line fast to it, astern into deep water and try to haul off. Work the helm to and fro. Run from side to side so as to loosen the boat from her muddy bed. If the tide is rising and your kedge does not drag, you will be sure to get off.

If you run aground while close-hauled, let go the mainsheet, put the helm hard over and try to back her off with the jib, at the same time using a boat-hook or oar to try to shove her into deep water. If you have any passengers, concentrate all their weight as far aft as possible. Send out a kedge, and let all hands clap to on the line. If the tide is on the ebb, you may probably have to wait till high water. Now comes a ticklish crisis. If your craft is beamy, with full bilges, she will take the ground and lie easily as the water recedes. If, on the other hand, your little ship is of the deep and narrow kind and is not provided with "legs," you will have to improvise something in that direction to prevent her from

careening on her side. "Legs" are not fashionable on this side of the Atlantic. They are props of wood shod with iron, one end of which rests on the bottom, while the other fits under the channels, or is lashed to a shroud. If you have no other spar available, unbend the head of the mainsail from the gaff. Stick it in the mud jaws downward close to the rigging and lash it firmly to a shroud. List the boat over to the side the gaff is out by guying over the boom and putting any extra weight you happen to have on the same side. The boat will then take the ground in safety.

* * *

Racing on Lake Deochenes

(Continued from page 206)

Christmas, in order to finish off the season and provide an opportunity for the distribution of the prizes. All the sailors are looking forward to this and it is certain that there will be a large attendance of the sailors and their friends. This will also provide an excellent opportunity for talking over plans for the coming season.

* * *

The Scooter

(Continued from page 207)

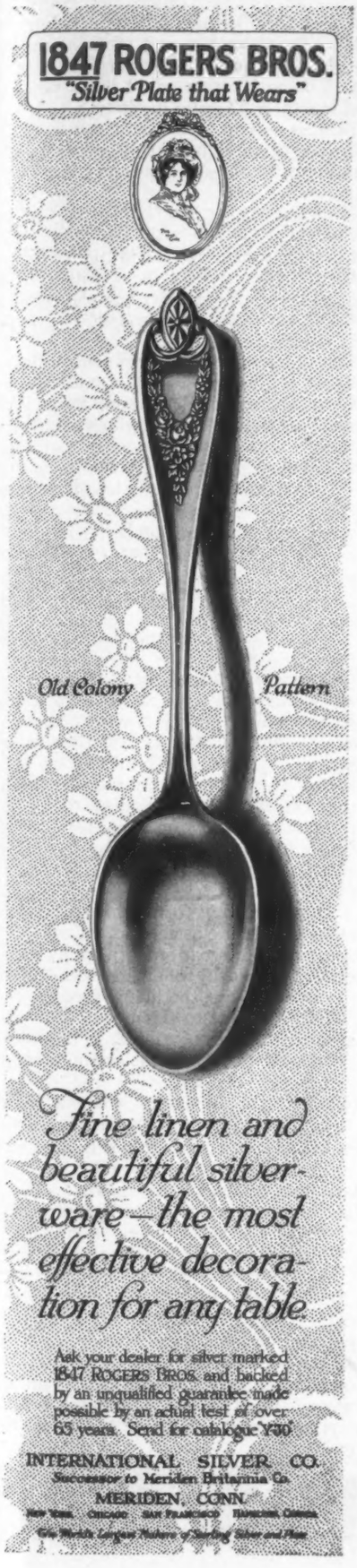
with that jib. Should she take it sideways, over she'll go. She must hit it true and be eased as much as may be by cunning play with the mainsail. Once over the first wild careen of her plunge, which is almost identical with the gliding plunge of a "shoot-the-chutes" boat, she skims the water as neatly as she skims the ice. When approaching solid ice again, she must be headed straight into it. Her flaring bow goes up its edge, and if she has arrived with speed, she has slid up on it and is off again on her runners before you know it. If the wind is too light to drive her forcefully enough, she may have to be helped up with pike pole, or with another and unique implement which has been especially devised, which looks as much like a hoe as anything.

A fair estimateof the scooter's speed is an average of possibly thirty miles an hour under good conditions, though on certain points of sailing, with good ice and a strong wind, she may exceed this for short stretches.

* * *

Acetylene for Running Motor Boats

A NEW generator for acetylene, which is suitable for motor craft, has been invented by a Norwegian engineer named Berger With this invention a petrol engine can be run on acetylene for 12 to 14 hours without a stop.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Forecasting the Weather

(Continued from page 234)

approach of an area of low barometer pressure from the west is indicated and rain will follow in a day or two.

Thunder Storms: The rain of summer usually occurs with thunder storms which are most frequent from certain directions and the wind in a particular quarter. Beyond the fact that more thunder storms come from a westerly quarter than from any other direction little can be said of value in forecasting their approach by the surface winds only. Their coming can usually be foretold a few hours by the form and movement of the clouds. A thunder storm in summer which does not depress the barometer will be very local and of slight consequence. Thunder storms are rare when the barometer is high and are to be looked for when it is low. About the earliest indication is when the sun in the morning is breaking through clouds and scorching a thunder storm will follow in the afternoon.

Rainbows: Rainbows are produced by the refraction of the Sun's rays in the rain drops in the air, the center of the bow being opposite the Sun. A rainbow seen in the morning is to the west and the shower will probably pass over the observer. And if seen in the afternoon the shower is to the east and is passing off. From this there has been handed down the old verse:

"Rainbow in the morning
Sailor take warning
Rainbow at night
Sailors' delight."

Fogs: Fogs are caused when the moist soil is at a higher temperature than the air, and the vapor which ascends reaches the point of saturation and condenses becoming visible. Fogs are produced in the same way when a current of warm moist air passes over a river or body of water of a lower temperature. *Fogs indicate fine weather.* On the Atlantic from 30 to 35 north latitude fogs are almost unknown.

Dew: When the temperature of the earth's surface falls below the dew point of the air the latter deposits on the cooled surface part of its vapor in dew drops. This is due to the rapid cooling by radiation especially on clear nights when the temperature of the ground and other solid substances becomes colder than the air above and the dew point or frost point is reached by the ground while the air a few feet above may be several degrees warmer. *Dew is an indication of fine weather. Heavy dew in hot weather indicates a continuance of fair weather. No dew after a hot day foretells rain.*

Frost suddenly following a heavy rain seldom lasts.

Moon: What appears to be a halo or ring around the moon is caused by ice crystals in the upper atmosphere and is an indication that bad weather is coming, possibly within twenty-four hours. One of the best forecasts based upon the appearance of the moon is when the moon can be seen quite clearly in the day time fair and cooler weather will follow with winds probably from the northerly quadrant.

"Moon light nights have the heaviest frosts."

Clouds: Clouds have been poetically called the "Storm signals of the sky." And in every locality there is one direction of cloud motion that betokens bad weather and another which portends fine weather.

"A fog on a mountain is a cloud
And a cloud on earth is a fog."

After fine weather the first signs in the sky of a coming change are usually light streaks, curls, wisps or mottled patches of white distant clouds which increase, and are followed by an overcasting murky vapor that grows into cloudiness—this appearance more or less watery, is an infallible sign, that wind or rain will prevail. Usually the higher and more distant such clouds seem to be the more gradual but more general the change will prove.

One of the important effects of clouds is to prevent the minimum temperature from becoming as low as it would under a clear sky because the radiation from the earth is hindered.

When clouds form over a region where the air is saturated with moisture the globules of water forming the clouds unite and descend through the moist air underneath falling as rain, and the higher the cloud the larger the size of the drops will be. High upper clouds crossing the Sun, Moon or stars in a direction different from that of the lower clouds or the wind field below, foretell a change of wind toward that direction.

Light scud clouds driving across heavy masses, show wind and rain, but if they are alone they may indicate wind only.

Misty clouds forming or hanging on heights, if they remain, increase or descend, indicate wind and rain, but if they rise or disperse the weather will improve or become fine. Light delicate quiet tints of color with soft undefined form of clouds, indicate and accompany fine weather. Generally the softer the appearance the less wind may be expected and the harder, more greasy, rolled and tufted or ragged the stronger the coming wind will prove.

Unusual gaudy hues with hard definite outlined clouds foretell rain and probably strong wind.

Hard-edged oily-looking clouds indicate wind and small inky-looking clouds foretell rain.

Clouds are different in form and character, and accordingly have been classified as follows:

Cirrus:—is the most elevated of all, thin and long-drawn looking like carded wool or hair or like curly or fleecy patches. It is the Cat's tail of the sailor, and the Mare's tail of the landsman. Its summer speed averages 67 miles per hour, while in winter it is 78 miles per hour, and has been observed making 182 to 200 miles per hour.

Cumulus:—is in large masses of hemispherical form above and flat below, one piled above another and often afford rain and thunder gusts. Their tops in summer travel on an average of 34 miles per hour, and in winter 47 miles per hour.

Stratus:—is in layers or bands extending horizontally, and has an average speed in summer of 13 miles per hour and in winter of 24 miles per hour.

Nimbus:—has a uniform gray tint and ragged edges, it covers the sky in seasons of continuous rain and is the proper rain cloud.

Cirro-Stratus:—like the cirrus of these broken fleece-like clouds, but the parts are more or less rounded and regularly grouped. It is the mackerel sky.

Cirro-Stratus:—The cirrus coalesce in long strata.

Cumulo-Stratus:—Between cumulo and stratus often of a black or bluish tint at the horizon.

"Mackerel sky
Twelve hours dry,

The higher the clouds
The finer the weather.

When clouds appear like rocks and towers,
The Earth's refreshed by frequent showers."

Thunder and Lightning: Thunder rolls because lightning is a series of discharges each of which giving rise to a particular sound. The occurrence of thunder and lightning is practically simultaneous, but an interval elapses before the thunder is heard due to the distance, to calculate the distance approximately allow one mile for every five seconds interval. If lightning is at a distance of or more than fifteen miles thunder will not be heard.

Lightning owing to the different types of flashes has been classified as follows:

Streak: A plain broad smooth streak or flash.

Sinuous: A flash following some general direction, but the line is sinuous, bending from side to side.

Ramified: Part of the flash appears to branch off from the main stem like branches of a tree.

Meandering: Wanders without definite course and forms irregular loops.

Beaded: A series of bright beads along streak lightning.

Dark flashes: Not understood.

Heat Lightning: Is distant lightning flashes below the horizon, but illuminates the higher strata of clouds and are too far away to be heard.

Sun and Sky: The Sun regulates the weather, it gives rise to winter and summer; by evaporation it raises the aqueous vapor into the air and this vapor by cooling causes clouds, rain, snow and hail. The Sun is the primary cause of the difference in atmospheric pressure and in this way produces wind.

The following are a few simple indications of the color and appearance of sky at sunset and sunrise and of the sky overhead.

If the Sun sets in a sky slightly purple and the atmosphere at the zenith is a bright blue, we may rely upon fine weather.

If the Sun is bright at noon it will be red at night.

Whether clear or cloudy, a rosy sky at sunset presages fine weather.

If before sunset the Sun appears diffuse and of a brilliant white, it foretells storms.

When after sunset the western sky is of a whitish yellow, extending a great height, it indicates probable rain during the night or next day. Gaudy or unusual hues, with hard definitely outlined clouds, foretell rain and probably wind.

The Sun setting after a fine day behind a heavy bank of clouds, with a falling barometer is generally indicative of rain or snow according to the season, either in the night or next morning. Setting in dark clouds expect rain the next day.

A bright yellow sky at sunset indicates wind and a pale yellow sky at sunset indicates rain.

By the prevalence of any kind of red or yellow or other tints, the coming weather may be foretold.

A dark Indian red indicates rain.

A sickly looking greenish hue indicates wind and rain.

A low dawn is when the day breaks on or near the horizon, the first streaks of light being very low down.

A high dawn is when the first indications of daylight are seen above a bank of clouds and indicates wind.

When the Sun in the morning is breaking through clouds and scorching, a thunderstorm follows in the afternoon.

A red sky in the morning indicates considerable wind and rain.

A gray sky in the morning indicates fine weather.

A dark gloomy blue sky overhead in the day indicates wind but light.

A bright blue sky indicates fine weather.

A solar halo indicates bad weather.

When the Sun appears to draw water, rain follows soon.

"Evening red
And morning gray
Two sure signs
Of one fine day."

"Sky red in the morning
Is a sailor's sure warning.
Sky red at night
Is a sailor's delight."

"An evening gray,
And morning red
Will send the shepherd
Wet to bed."

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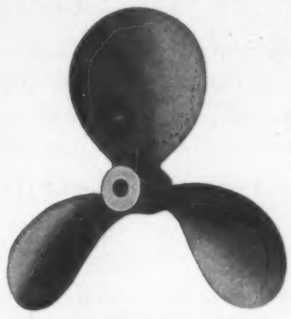

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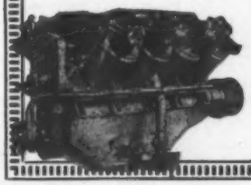

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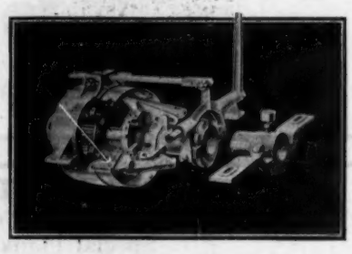

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